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Health and productivity opportunities

Assessing the economic value of addressing priority health conditions in Hawke's Bay working-age Māori

NZIER report to Tihei Takitimu Iwi-Māori Partnership Board and Hawke's Bay Regional Economic Development Agency

May 2025

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Our expert team is based in Auckland and Wellington and operates across all sectors of the New Zealand economy. They combine their sector knowledge with the application of robust economic logic, models and data and understanding of the linkages between government and business to help our clients and tackle complex issues.

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Key points

Productivity drives growth, employment, incomes and wellbeing

Productivity is key to economic prosperity. It drives economic growth, attracts new businesses, and supports existing businesses to grow. Productivity also supports growth in employment, businesses, and opportunities, and it can translate into higher incomes that support not only the working-age population but also their dependents and vulnerable members of the community. The productivity of the Hawke's Bay working-age population is, therefore, a key concern for prosperity and wellbeing in the Hawke's Bay region.

Māori health outcomes are important to the Hawke's Bay economy

Health is key to economic prosperity. Healthier populations tend to be more productive, having higher employment rates and lower rates of absenteeism and presenteeism, especially in lower-skilled occupations with high physical demands, such as those often occupied by Māori in primary industries and manufacturing.

Māori have worse health outcomes than non-Māori, and the government identified Māori health priorities as those conditions where there are known effective health system interventions. Investing in these for the working-age population would likely accelerate economic growth in Hawke's Bay, where a significant portion of the workforce is Māori, and the major industries rely on physically and mentally healthy workers.

The Hawke's Bay Regional Economic Development Agency and Tihei Takitimu Iwi-Māori Partnership Board commissioned this report to provide a deeper understanding of how the health of the Māori working-age population is faring in Hawke's Bay and the value of productivity that is currently being lost, with a focus on priority conditions. The aim is to inform the design and planning of future services that might support improved productivity and wellbeing.

Priority health conditions are common health conditions with known solutions

Using inpatient hospitalisation data and mortality data, which both contain diagnosis codes, we identified that:

- In 2022/23, there were at least 1,331 working-age Māori (671 males and 660 females) hospitalised with at least one diagnosis of a priority health condition.
- On average, each year, around 50 working-age Māori in Hawke's Bay die, with a priority health condition being the underlying cause of death.
- Mental illness and diabetes are the most common priority health conditions amongst working-age Māori who were hospitalised in 2022/23; cardiovascular disease is the most likely cause of death, while mental illness and chronic obstructive pulmonary disease (COPD) are the main diagnoses in acute hospitalisations.
- The profile of priority health conditions in working-age Māori is different across life stages: Mental illness is the key condition and cause of death in those aged 15 to 29, with diabetes and cardiovascular disease becoming more prominent in later decades.

The productivity impacts of priority conditions in Hawke's Bay working-age Māori represent a significant economic opportunity

Priority health conditions have known solutions, so their productivity impacts are a significant economic opportunity for whānau, businesses, and the Hawke's Bay economy. Opportunities for productivity gains come from reduced time spent accessing healthcare as well as from improving health and living longer. We quantified these for the Hawke's Bay working-age Māori population and estimated, based on conservative assumptions, that the value of the opportunity is around $122 million annually (see Figures 1 and 2). Over 90 percent of this would be released by addressing premature mortality from these conditions.

The value of potential productivity gains is equivalent to an additional 1,800 healthy workers per year in the Hawke's Bay economy. Additional productivity gains not quantified in this report are likely with reduced caregiver burden and reduced whānau impacts, which are likely to be high for premature mortality (including suicide), self-harm, and addictions.

Table 1 Potential productivity gains by priority health condition for working-age Māori in Hawke's Bay

$NZ 2025, based on 2022/23 data

Condition	Female	Male	Total
Cancer	$15,101,980	$14,912,974	$30,014,954
Cardiovascular disease	$7,456,437	$24,634,539	$32,090,977
COPD	$2,614,564	$2,313,744	$4,928,308
Diabetes	$2,620,325	$3,956,545	$6,576,870
Ischemic stroke	$640,028	$257,273	$897,301
Mental illness	$17,318,276	$30,218,623	$47,536,899
Total	**$45,751,610**	**$76,293,698**	**$122,045,308**

Source: NZIER

Table 2 Sources of potential productivity gains for working-age Māori in Hawke's Bay with priority health conditions

$NZ 2025, based on 2022/23 data

Source of productivity loss	Female	Male	Total
Premature mortality	$42,489,861	$71,639,568	$114,129,429
Time spent accessing health services	$1,525,285	$2,166,318	$3,691,602
Hospitalisations	$1,106,143	$1,738,737	$2,844,880
Emergency department visits	$84,693	$118,068	$202,761
Outpatient visits	$281,836	$257,055	$538,890
Mental health & addictions contacts	$52,613	$52,458	$105,071
Ongoing productivity losses	$1,736,462	$2,487,810	$4,224,273
Total	**$45,751,608**	**$76,293,696**	**$122,045,304**

Note: Figures differ slightly between tables due to rounding.

Source: NZIER

It is also likely that potential productivity gains are underestimated due to the use of evidence from a range of occupational contexts: Māori in Hawke's Bay often work in hard physical jobs where poor health is likely to have a greater impact on productivity, and effective health interventions make a bigger difference.

Comparison with other regions reveals potential for improvement

Hawke's Bay Māori often live in rural and remote communities and face significant access barriers to health services. Comparisons with two more urban regions with significant Māori populations (Auckland and Counties Manukau) reveal that working-age Māori in Hawke's Bay are high users of hospital-based services, especially acute care. Notably, our analysis shows Counties Manukau likely achieves better outcomes for working-age Māori.

While the Hawke's Bay working-age Māori population has lower rates of priority condition diagnoses than Auckland and a similar rate to Counties Manukau, compared with these two other regions, the Hawke's Bay working-age Māori population has:

- the highest rate of emergency department (ED) visits by people with priority conditions
- the lowest rate of outpatient service use overall
- the highest rate of working-age Māori female deaths compared with the Auckland and Counties Manukau regions
- the highest rate of acute inpatient hospitalisations is in the 50-to-64-year age group
- a high prevalence of mental illness (defined here to include mental health conditions, substance use disorders and self-harm), including as a cause of death at young ages, resulting in significant productivity losses
- a more extreme pattern of low use of planned services, higher rates of acute illness, and a steeper age-related increase for all indicators in working-age Māori males.

Conclusion

Our findings indicate that addressing priority conditions in Hawke's Bay working-age Māori could have significant economic value to the local economy and improve whānau wellbeing. Overall patterns of health service use suggest preventive care (prevention, early detection and effective management of health conditions) may not be effectively reaching working-age Māori in Hawke's Bay, resulting in avoidable premature mortality in working-age Māori females and significant ill-health in working-age Māori males as they age.

Our analysis provides only a part of the evidence needed to inform decisions on solutions.

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1 Context

Why the productivity of the Māori population is important in Hawke's Bay

The Te Matau a Māui Hawke's Bay consists of Central Hawke's Bay, Wairoa, Napier City and Hastings, together comprising approximately 185,000 residents, of which approximately 60 percent are of working age, with a higher than national average proportion of Māori (Infometrics 2024b).

The local economy generates approximately $11,385 million in gross domestic product (GDP) annually, with high proportions of the local working-age population employed in horticulture and agriculture, meat processing, forestry, tourism, manufacturing and construction. Many occupations in these industries are physically demanding and unsuitable for remote working. This means the economic prosperity of the region is dependent on a strong, physically and mentally healthy workforce. But nationally, Māori experience higher rates of a wide range of health conditions as well as injuries that result in absenteeism, presenteeism, long periods of withdrawal from the workforce, and early retirement.

Perhaps unsurprisingly, given the significant health, social and economic challenges facing the local community, Hawke's Bay's productivity remains significantly lower than that of the national economy, accompanied by a lower proportion of highly skilled jobs, a lower employment rate, and lower mean household earnings.

Cyclone Gabrielle, which struck the region in February 2023, resulted in widespread devastation and loss. Efforts to rebuild and recover have been substantial, but the local workforce is also key to achieving objectives. Construction workforce demand projections highlight that workers able to undertake physically demanding work are urgently needed in Hawke's Bay.

Supporting all adults who want to work to be able to work is a fundamental function of a public health system. However, the current system is not configured to prioritise this outcome. This results in a loss of significant value because healthy, work-fit adults not only support economic development for their communities but also support their households, contributing to better outcomes for current and future generations.

Hawke's Bay Māori priorities identified by the Iwi Māori Partnership Board

The purpose of Iwi-Māori Partnership Boards (IMPB) under Section 29 of the Pae Ora Act 2022 is to represent local Māori perspectives on:

- the needs and aspirations of Māori in relation to Hauora Māori outcomes
- how the health sector is performing in relation to those needs and aspirations
- the design and delivery of services and public health interventions within localities.

To deliver on this, one of the first pieces of work commissioned by the IMPB Tihei Takitimu Iwi-Māori Partnership Board was to gain a deeper understanding of the needs and aspirations of whānau Māori in the Hawke's Bay region by drawing on available information from the health system. This included gathering evidence from the IMPB profiles and additional data from Health NZ|Te Whatu Ora and the local PHOs. In addition to institutional data and evidence, Tihei Takitimu Iwi-Māori Partnership Board also consulted

with the Māori community to ensure the voice of whānau would be reflected in the interpretation of data and consideration of priorities.

Much of the data, evidence and insights gathered through this process are relevant to the issue of Māori productivity.

Hawke's Bay will increasingly depend on Māori productivity

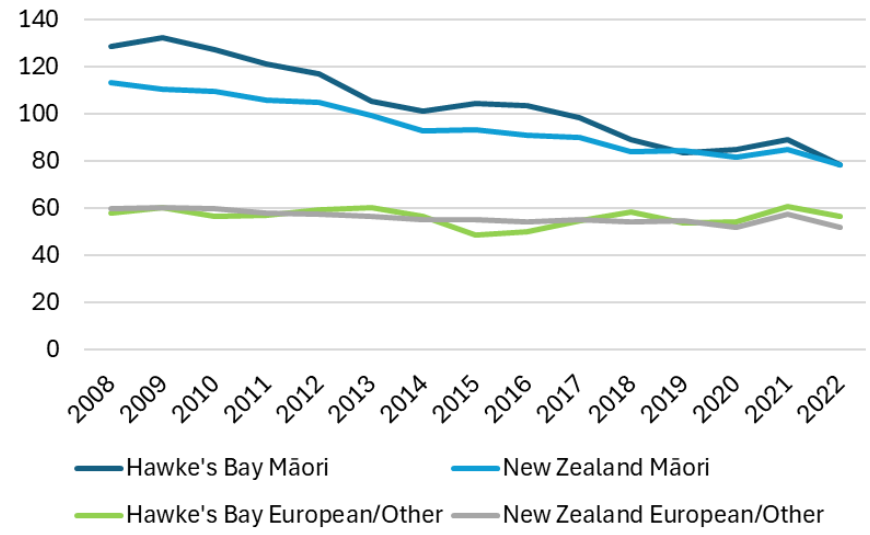
Demographic trends shape the workforce as well as the dependent population.

In 2023, 29 percent of the Hawke's Bay population identified as Māori – 11 percentage points higher than the national proportion of 18 percent. New Zealand's Māori population generally has a younger-than-average age composition (median ages for Māori males and females were 26 and 28 years, respectively, in 2023, compared with national median ages of 37 and 39 years.

Hawke's Bay Māori have historically had a higher birth rate than New Zealand Māori generally. Although these have converged in recent years, both the Hawke's Bay and national Māori birth rates significantly exceed their European/Other counterpart.

Figure 1 Hawke's Bay and national birth rates by ethnicity

Births per 1,000 women of reproductive age



Source: Statistics NZ

Among the four territorial authorities making up Hawke's Bay, Wairoa has by far the highest proportion of Māori (69 percent) and is therefore expected to feel the impacts of Māori inequities and Māori productivity more intensely.

In Hawke's Bay, the Māori population is expected to grow over the next two decades, leading to a greater total share of the Hawke's Bay population. This, combined with the ageing of the Māori population, indicates that in addition to Māori health and productivity having significant impacts now on whānau and the region:

- the overall productivity of the Hawke's Bay working-age population will increasingly reflect Māori productivity

- Māori whānau will be supporting more older people, with potential strain on working-age Māori to provide financial and non-financial support to support the wellbeing of older generations.

Health status impacts on individual, population, and industry productivity

Productivity refers to the amount of output (production) generated by each unit of input. This means there are alternative ways of thinking about productivity that are important at a population level, based on whether the unit of input is defined at an individual level or population level.

- A person, group of workers, business or industry can be more or less productive depending on how much output a unit of input (commonly defined in terms of worker hours) can produce.
- A working life can be more or less productive, based on outputs per unit of input over the lifetime or due to the number of units of input that a working life can invest in production (e.g. a working life cut short by significant illness, disability, or death at age 50 is a less productive working life than if the person works to age 65).
- A population can be more or less productive, based on the productivity of individuals and groups within it and the proportion of people within the population who are able to work.

Productivity impacts of poor health include:

- absenteeism (employed people taking sick days)
- presenteeism (employed people experiencing reduced performance at work due to health issues)
- reduced employment (being unable to work or working less due to health issues)
- early retirement (withdrawing from the workforce at an earlier age due to health issues)
- premature mortality (dying during one's working life, reducing the total years of work and lifetime productivity per person).

Productivity losses are felt differently for different people, depending on the type of productivity loss:

- the burden of absenteeism and presenteeism falls largely on employers who continue to pay workers at the same rate despite higher levels of absenteeism and presenteeism, although over time, the cost of increased absenteeism and presenteeism may be expected to be passed on to the worker through fewer opportunities for wage increases, career advancement, and increased risk of redundancy
- sometimes absenteeism can mean a loss of earnings for workers, such as when the need for sick leave exceeds paid sick leave allowances
- health issues can result in workers being laid off or having to resign or retire early, resulting in a loss of income for the household
- premature mortality within a person's working life also results in financial hardship for whānau due to the loss of household income, and children who face the loss of a parent and grow up in households with lower incomes are at higher risk of worse

education outcomes, with impacts on the next generation's productivity and wellbeing.

Māori productivity is critical to current and intergenerational Māori wellbeing

According to the Treasury, productivity is the most important long-run determinant of wages and living standards (The Treasury 2024).

Employment earnings have a substantial impact on household wellbeing and intergenerational wellbeing. Low incomes impact housing quality and housing stability, both of which can lead to negative mental and physical health outcomes and poorer educational outcomes for children.

Higher productivity for Māori, including from greater labour force participation, reduced workplace absenteeism, higher rates of full-time work, and longer working lives, is expected to translate into higher household income and improved whānau and intergenerational wellbeing.

Published studies demonstrate that a particular concern for productivity is mental health and chronic conditions. For example, a UK study that used a large labour force survey sample to investigate how different physical and mental health conditions affect absence rates among prime-age workers revealed that people with a chronic health condition are more likely to be absent from work, and mental health has a significantly larger effect than physical health. A change in mental health affects absenteeism more than three times as much as a change in physical health (Bryan, Bryce, and Roberts 2021).

A New Zealand study (Dixon 2015) noted several reasons why variations in productivity impacts might exist between people with different levels of wage and salary incomes, including the task requirements of the job, which impact the ability to remain employed or return to work. Māori are more likely to be employed in manual jobs and would therefore be expected to have lower than average rates of employment following diagnosis with any condition that reduces physical fitness.

Māori health and productivity

Māori have, on average, the poorest health status of any ethnic group in New Zealand, with previous research estimating that in 2014, the productivity costs of health inequities amounted to $823.4 million. The research pointed to:

- significant under-utilisation of primary care
- higher use of pharmaceuticals
- fewer laboratory tests
- higher use of mental health services and outpatient services
- twice the age-standardised amenable mortality rate of non-Māori
- more than 50 percent higher rate of ambulatory-sensitive hospitalisations.

These findings were found to be particularly marked for Māori aged 45–64 years, and the patterns of service use were identified as highly indicative of declining health status associated with earlier inadequate preventive care (Reid et al. 2022).

2 Our approach

Framework

The government has already identified the strategic health priorities for Māori (Curtis et al. 2022). Health conditions identified as priorities for Māori were those that:

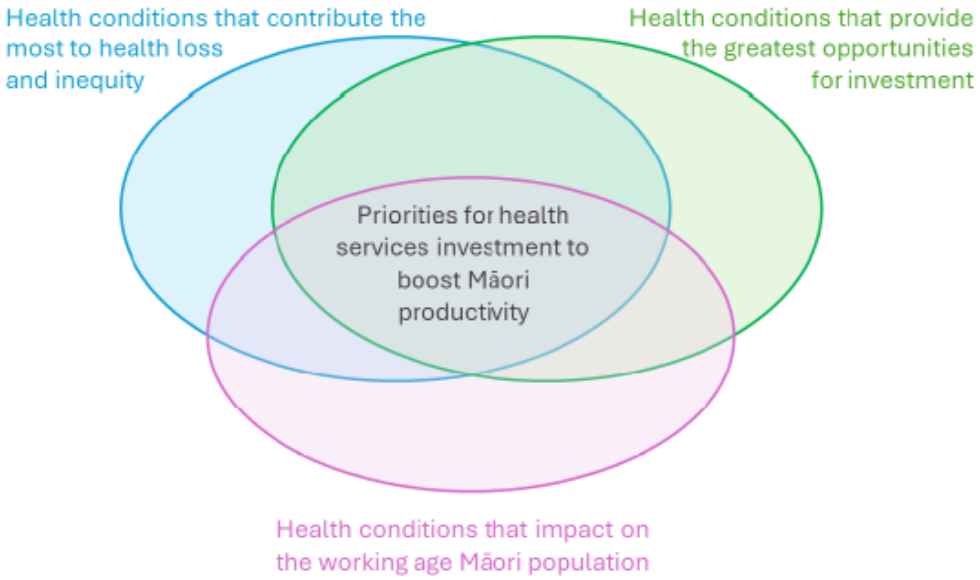
- contribute the most to health loss and health inequity
- provide the greatest opportunities for investment.

The Māori health priorities set out by the government that are relevant to the current working-age population are:

- cancer
- long-term conditions, namely cardiovascular disease, diabetes, stroke, and chronic respiratory disease
- mental health.

This set of priorities, combined with the Hawke's Bay working-age Māori demographic, provides the framework for our approach. This framework is expected to support further work to identify the solutions that are needed to better support the productivity of working-age Māori in Hawke's Bay.

Figure 2 The framework for our aproach



Source: NZIER

Scope

The priority health conditions may include a wide range of specific diagnoses, but no list of these specific diagnoses has been published. This means that some definition is needed to identify priority health conditions in the data.

We identify people with priority health conditions in the National Minimum Data Set (NMDS) by ICD10-AM codes used in the diagnosis fields for inpatient events. A table detailing the ICD10-AM codes used is in Appendix A.

There are arguably different ways that priority health conditions could be defined. However, we focus on defining them in a way that is most relevant to potential interventions.

While we take a broad approach to defining mental illness, including mental health conditions, substance use, and self-harm, we define cancer and stroke more precisely, including only those cancers which currently can be detected early through screening (bowel, breast and cervical cancers) or by testing available in a primary care setting (prostate cancer) or are amenable to prevention through interventions delivered in a primary care or community setting (lung cancer), and restricting stroke to ischemic stroke – the form of stroke most amenable to prevention.

A rapid literature review identified cardiovascular diseases to ascertain which specific diagnoses would be most amenable to primary and secondary prevention.

Diabetes is coded in such a way that it is not possible to differentiate between type 1 and type 2; however, both types of diabetes should be managed during a person's working age to avoid diabetes-related mortality and hospitalisations. We include all diagnosis codes for diabetes, and approximately 90 percent of them are likely to represent type 2 diabetes.

Methods and data

For this project, we requested data from Health NZ, and this provided the most recent 3–4 financial years of complete data from the National Minimum Data Set (NMDS), the National Non-Admitted Patient Collection (NNPAC), the Mortality Collection, and the Programme for the Integration of Mental Health Data (PRIMHD). All data sets described the years 2019/20 to 2022/23, except the Mortality Collection, from which complete data was provided for 2018/19 to 2020/21, due to 2021/22 data and later data being provisional and potentially incomplete.

The data was provided, as requested, with the National Health Identifier (NHI) encrypted alike across the different datasets. This ensures that any counts of individuals do not result in double-counting where an individual appears more than once within a dataset or within more than one dataset.

Working-age Māori population

We define the working-age population as people aged 15 to 64 years. Many people can and do work beyond age 64; however, for Māori who experience priority health conditions during their working lives, the objective of remaining employed to 65 is more relevant.

We use prioritised ethnicity to capture patient events for people of Māori ethnicity, consistent with Health NZ's approach.

We exclude from the data individuals whose sex is recorded as "Other" due to numbers being very small, which presents a risk of identifiability and also due to this classification not aligning with labour market data, which is organised using a binary gender classification. There were very few instances of patient events recorded where both the ethnicity was recorded as "Māori", and the sex was recorded as "Other". We acknowledge that the specific health needs and productivity concerns of people who identify their gender as neither male nor female require attention, as intersectional inequities suggest

this is likely to be a subpopulation that experiences more severe impacts, and this warrants approaches that allow for in-depth investigation without risk of individuals being identified.

Priority conditions and productivity analysis

The number of people diagnosed with a priority condition confirmed by an inpatient stay with a relevant diagnosis code is used to estimate the productivity losses associated with each health condition. Because people can have multiple conditions, we assign to the total number of people with any diagnosis a proportion that corresponds to the prevalence of each priority condition in total diagnoses.

We then tracked those individuals with a priority health condition diagnosis through the inpatient (NMDS), ED and outpatient data (NNPAC) to identify their use of these services.

For people who were alive in 2022/23, we estimate productivity losses based on:

- the time spent accessing services (restricting this to impacts on regular business hours)
- the longer-term impact of each health condition on employment and employment income (used as a proxy for productivity) as described in published studies.

We identify people who die during their working years in the Mortality Collection, which describes all deaths occurring in New Zealand and also includes an underlying cause of death field based on the same ICD10-AM codes, which enables the identification of deaths that have occurred with a priority condition as the cause of death. We use this, along with sex and age at death, to quantify productive life years lost.

There were three main challenges in the data we worked with:

- the mortality data represents a small group, is older and focused around the COVID-19 pandemic
- outpatient data is broad, and there is no consistent unit to count service use, or any capture of time spent
- PRIMHD does not consistently capture data, with missing data on patient age being a key concern.

The mortality data may be impacted by COVID-19. However, as the COVID-19 lockdown of 2020 was very successful in preventing the spread of the virus for the final few months of 2019/20, any spike in deaths that year is more likely to have been related to the lockdown and its effect on services and care-seeking behaviour rather than the virus itself.

Additionally, mortality data describing younger and smaller populations is known to be highly variable from year to year, and it was outside the scope of this project to ascertain how much of a spike that occurred in the COVID-19 period may have been related to COVID-19 pandemic or the pandemic restrictions as opposed to being normal annual variation.

With only three years of apparently complete mortality data, we conduct our analysis using the annual average number of deaths to deal with annual variability.

Outpatient events can include a wide range of services from diagnostic to treatments such as dialysis and surgical procedures. Some outpatient events are recorded as individual interactions with services (such as first specialist appointments and follow-up appointments). Some outpatient services are recorded as ongoing interactions, such as some dialysis services, which do not record every instance of dialysis but rather the number

of patients in the time period who are engaged or enrolled in those services. For our analysis, we count all instances where an individual is recorded against an outpatient service as an outpatient event. The implication of this is that we underestimate the true number of interactions; however, this approach provides a conservative estimate rather than risking an overestimate that may result from attempting to bring a level of detail to a dataset that does not support that.

Consistent reporting of data is a key issue for PRIMHD, and the data we received confirms that even basic demographic data on people referred to or accessing services is often missing. We elected to use inpatient data to identify diagnoses of mental health and addiction issues and use the PRIMHD data only to describe the Hawke's Bay in comparison to Auckland and Counties Manukau, although it is not clear how regional differences in data completeness may affect this comparison.

We estimate lost productivity based on the age and sex of people with priority health conditions and published estimates of employment rates and earnings from paid work, and the following conservative assumptions:

- any face-to-face outpatient attendance would require a half day of absence from work (outpatient services are typically delivered during regular business hours, Monday to Friday)
- any ED visit that either starts or ends during regular business hours will result in one day of absence from work
- inpatient bed days have a 5/7 probability of resulting in absence from work due to inpatient stays occurring over 7 days per week.

Due to a lack of granular data on employment patterns, we assume regular business hours, Monday to Friday, to estimate productivity losses.

Lost productivity is typically valued by applying age and sex-specific rates of employment and earnings to lost life years. We apply an employment rate of 69 percent, estimated based on the total Māori employed (Infometrics 2024b) and Statistics NZ population estimates. This is likely to be a conservative employment rate because it reflects all ages, and the youngest age groups have lower rates of employment, while life years lost, even for very premature mortality, more heavily represent the later years of people's working lives. It is also conservative because a lower employment rate amongst working-age Māori can be another result of poor health outcomes. If effective interventions reducing premature mortality in working-age Māori were a reality, it is also highly likely that Māori employment rates would be higher.

A similar argument may be made regarding employment earnings, which are often a function of lower educational attainment, which is more likely in families affected by persistent health inequities and the dampening impacts of these on household income and wealth. Earnings by ethnicity are also not readily available. For these reasons, we apply average earnings, which are reported by sex.

We also apply sex-specific earnings. Employed females earn, on average, 23 percent less than employed males due largely to a combination of occupational and industrial differences and an increased rate of part-time work, as well as unexplained factors, which may include gender discrimination. These differences are unlikely to be affected by better access to health services or improved health outcomes.

We do not value productive time lost in unpaid work, not because it is not equally valuable, but because the analysis is intended to support decisions about investments that might help Hawke's Bay industries and businesses grow and lift employment and incomes for Hawke's Bay Māori.

Population denominators for rate calculations

To analyse health data and productivity impacts for the Hawke's Bay working-age population, we required population estimates with age, sex, and ethnicity breakdown. We used Statistics NZ's population estimates, which are available on a five-yearly basis from 2018 and interpolated the years between 2018 and 2023 to generate data for the years corresponding to the years in the health datasets.

Rates of health events were calculated using the 2022 population estimates and the 2022/23 health events.

The denominator populations used to calculate rates are shown in Table 3 below, with age groups aggregated to the total working-age population (aged 15 to 64 years).

Table 3 District working-age populations

Population aged 15 to 64 years, 2022

District	Māori			Non-Māori			Total
	Female	Male	Total	Female	Male	Total	
Auckland	15,396	15,306	30,702	170,117	170,003	340,120	383,020
Counties Manukau	32,526	29,988	62,514	159,954	162,123	322,076	399,336
Hawke's Bay	16,544	15,290	31,834	38,607	38,199	76,806	108,864

Source: NZIER, Statistics NZ population projections by region

It is common for population data with granular breakdowns to provide slightly different estimates than estimates of total population, which may be published elsewhere.

Mortality rates were the only exception to the use of 2022/23 health data. Because mortality data were only available up to 2020/21, we used the 2020/21 deaths and the 2020 population estimate to calculate rates.

Additional analysis on the Wairoa working-age Māori population

The Wairoa community faces more significant challenges than the rest of Hawke's Bay in accessing health services. It also has a disproportionate share of the Hawke's Bay Māori population. These two facts raise additional concerns regarding the impacts of priority conditions in Wairoa. We provide some additional analysis of Wairoa working-age Māori health events in Appendix B.

3 Working-age Māori in Hawke's Bay

The 2022 population estimate for working-age people in Hawke's Bay (see section 2, population denominators for source and methods) is 108,864 people, including:

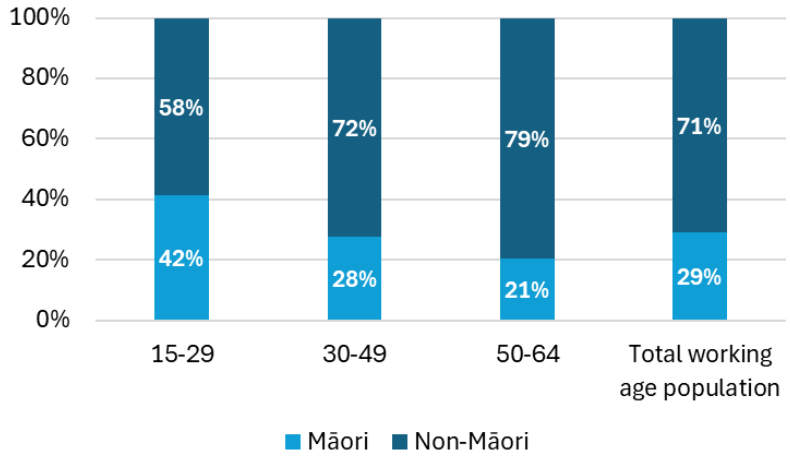
- 31,834 Māori
- 76,806 non-Māori.

Based on these figures, Māori make up 29 percent of the Hawke's Bay working-age population overall.

In addition to representing a substantial share of the overall Hawke's Bay working-age population, Māori make up a disproportionate share of the younger working-age population, with 42 percent of the 15- to 29-year working-age population in Hawke's Bay identifying as Māori.

Figure 3 Representation of Māori in the Hawke's Bay working-age population

2022 population estimate



Source: NZIER

According to a report by Infometrics (2024a), the number of Māori employed in Hawke's Bay has risen from under 15,000 in 2013 to well above 22,000 in 2023. This translates into an employment rate of approximately 69 percent using our estimate of the Māori working-age population.

Rapid growth in employment of Māori over recent years has resulted in the Māori unemployment rate in Hawke's Bay declining from 17.1 percent in the aftermath of the global financial crisis (GFC) in 2010 to 7.8 percent in 2023 (Infometrics 2024a).

With an increasing proportion of Māori labour market participants (people willing and available to take on paid work) being absorbed into employment, Hawke's Bay employers will be increasingly wanting:

- workers can be as productive as possible
- workers to have long working lives

- more people to enter the labour force and expand the available pool of workers.

The health status of the working-age population has a direct impact on the region's ability to deliver on these objectives.

Māori workers are overrepresented in Hawke's Bay's primary industries of agriculture, forestry and fishing, as well as in goods-producing industries. These industries are characterised by a high demand for lower-skilled workers. In these industries, meat processing is the largest employer of Māori workers (Infometrics 2024a).

Average Māori earnings are lower than average across all ethnicities, and the gap is widening. The average earnings of Māori workers in Hawke's Bay were $59,200 in 2023, compared with an average of $67,100 across all ethnicities.

The key takeaways from this analysis for the consideration of how priority health conditions impact Māori productivity are that Māori are overrepresented in the primary industries and meat processing, and that these industries tend to employ a large proportion of low-skilled workers. The implication of these facts is that:

- Māori in Hawke's Bay are in types of employment with little to no flexibility regarding working hours or remote working.
- Māori in Hawke's Bay are employed in occupations that often require physical labour.

These are important implications because they mean Māori needing to access health services may often need to miss work to do so, and Māori who are not in top physical shape are likely to be less productive than they might be. This is in stark contrast to occupations where people work at a desk and have flexible hours. In such a case, a person can attend health appointments during regular working hours and make up the time later, and they can continue working productively through a wide range of ailments and injuries.

More Māori could potentially be working if their health allowed it

In 2021, the Meat and Meat Processing industry contributed $200 million to our regional Gross Domestic Product (GDP).[4] Hawke's Bay has six meat processing plants, stretching from Wairoa through to Central Hawke's Bay. The peak season demand for all meat processing plants requires around 2,500 kaimahi. Engagement with industry has identified significant challenges in meeting peak labour demand. This worker shortage results in decreased productivity as plants cannot run at the desired capacity (Hawke's Bay Regional Skills Leadership Group 2022).

The report above also notes that parts of the primary industries sector struggle to meet their need for labour in Hawke's Bay.

Infometrics (2024a) also estimated that:

- In 2023, there were 22,223 Māori in Hawke's Bay in employment out of a total of 31,834 working-age Māori in Hawke's Bay (NZIER estimate based on Statistics NZ population projections)
- The average earnings of Māori workers in Hawke's Bay were $59,200 in 2023, compared with $67,100 on average across all ethnicities
- Māori unemployment in Hawke's Bay was 7.8 percent in 2023.

4 Health service use of working-age Māori in Hawke's Bay

In this section, we describe the broader context of health services used by working-age Māori in Hawke's Bay, including regional comparisons, before focusing on priority health conditions in subsequent sections.

As noted by Reid et al. (2022), patterns of service use can describe an imbalance between the health needs of a population and the services available to it. Imbalances that result in higher acute care needs will likely have higher productivity costs.

Outpatient events

Outpatient events can include a wide range of services from first specialist appointments to diagnostics, treatments such as dialysis and other infusions and surgical procedures, and follow-up care. Counting all patient events recorded as they are in the outpatient collection, in 2022/23, there were 22,690 outpatient events involving working-age Māori per year, a rate of 713 events per 1,000 working-age Māori.

Table 4 Number and rate of outpatient services for working-age Māori in Hawke's Bay

2022/23

Indicator	Value
Outpatient events	22,690
Rate per 1,000 population	713

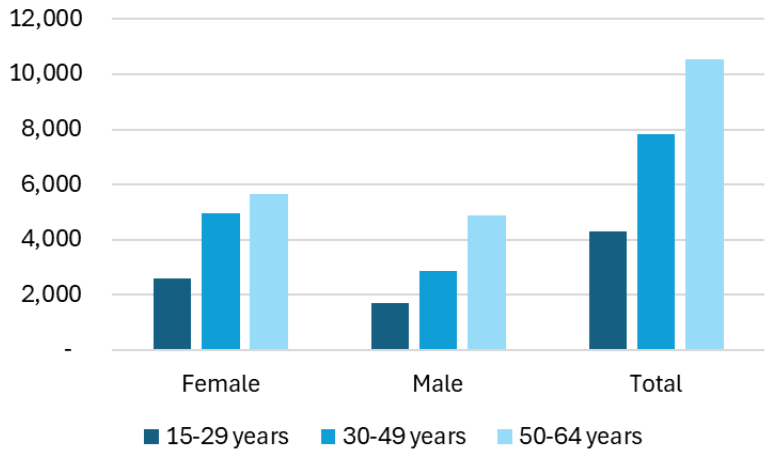
Source: NZIER, Health NZ data (NNPAC), Statistics NZ population estimates by region

A key aspect of outpatient services is that they are planned services which are often essential to ensuring people receive timely diagnosis or treatment that supports effective management of long-term health conditions. Access to planned services is critical to minimising acute demand. For this reason, a high outpatient service use rate does not necessarily indicate poor health outcomes. Indeed, for people with long-term conditions, outpatient services are often essential to achieving good outcomes.

While the use of outpatient services is expected to increase as people age, the age gradient in outpatient services is steeper for working-age Māori females in the first half of their working life, while it is steeper for working-age Māori males in the second half of their working life (see Figure 4 below).

Figure 4 Outpatient events by age group for working-age Māori in Hawke's Bay

Number of events, 2022/23

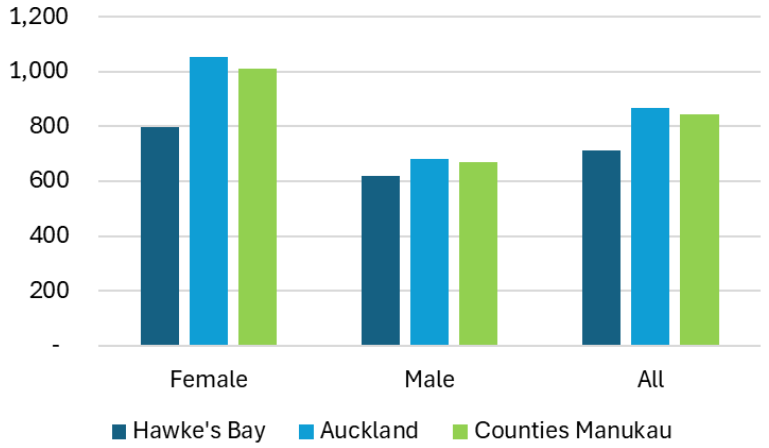


Source: NZIER, Health NZ data (NNPAC)

Hawke's Bay working-age Māori access outpatient services at a notably lower rate than working-age Māori in Auckland and Counties Manukau, with the difference being particularly pronounced for working-age females (see Figure 5 below).

Figure 5 Regional comparison of outpatient service use by working-age Māori

Rate per 1,000 population, 2022/23



Source: NZIER, Health NZ data (NNPAC), Statistics NZ population estimates by region

Attending outpatient events can be time-consuming for working-aged people due to the time attending as well as the time spent travelling, and these appointments are generally held during working hours, Monday to Friday. Hawke's Bay Māori living in more rural and remote areas are likely to experience these as significant barriers compared with Māori living in Auckland and Counties Manukau.

While COVID-19 accelerated the adoption of virtual and telephone outpatient appointments, many outpatient visits involve diagnostics, treatments and procedures that cannot be delivered without a face-to-face appointment. In 2022/23, despite a decrease in

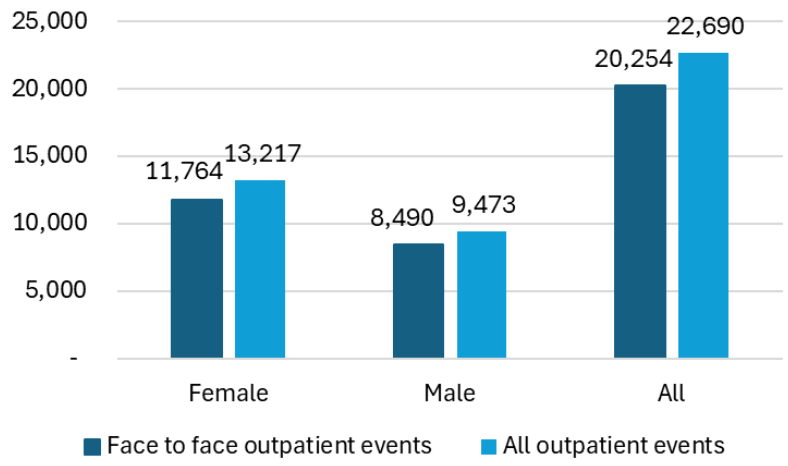
the percentage of outpatient services delivered face-to-face, this remained the predominant mode of delivery.

In 2022/23, working-age Māori attended 20,254 face-to-face outpatient events, most of which would have required travel to a hospital.

Females attended significantly more outpatient events than males.

Figure 6 Outpatient events attended by working-age Māori

Number of events, 2022/23

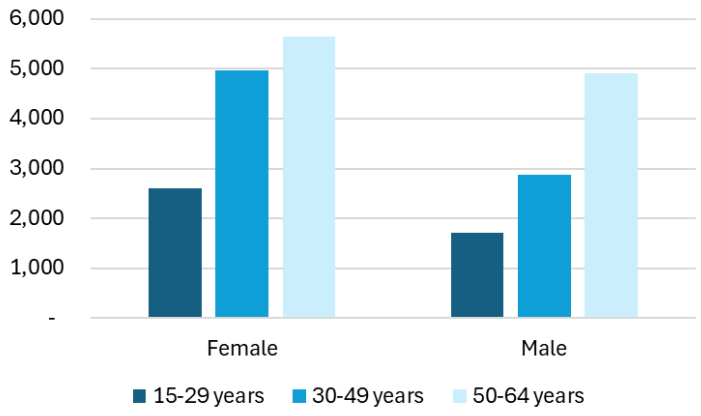


Source: NZIER, Health NZ data (NNPAC)

In addition to female Māori having more outpatient events in total, the pattern of events over the life stages is different, with female Māori experiencing the most significant increase in attendance when they move into the 30-to-49-year age group and male Māori experiencing the most significant increase in attendances when they move into the 50-to-64-year age group.

Figure 7 Outpatient events by age group for male and female working-age Māori

Number of events, 2022/23



Source: NZIER, Health NZ data (NNPAC)

Emergency department visits

ED visits are an indicator of acute health needs that are not being met or are not able to be met in the community. ED visits can be a significant productivity concern, not only because people visiting the ED may be seriously unwell but because even minor ailments that result in an ED visit often require the patient to spend far more time accessing care than would be the case if care were available and accessible in the community.

On average, over 2019/20 to 2022/23, there were 9,486 visits to the ED services per year by working-age Māori in Hawke's Bay, a rate of 350 people per 1,000 population.

Table 5 Number and rate of ED visits by working-age Māori in Hawke's Bay

Annual average based on 2019/20 to 2022/23

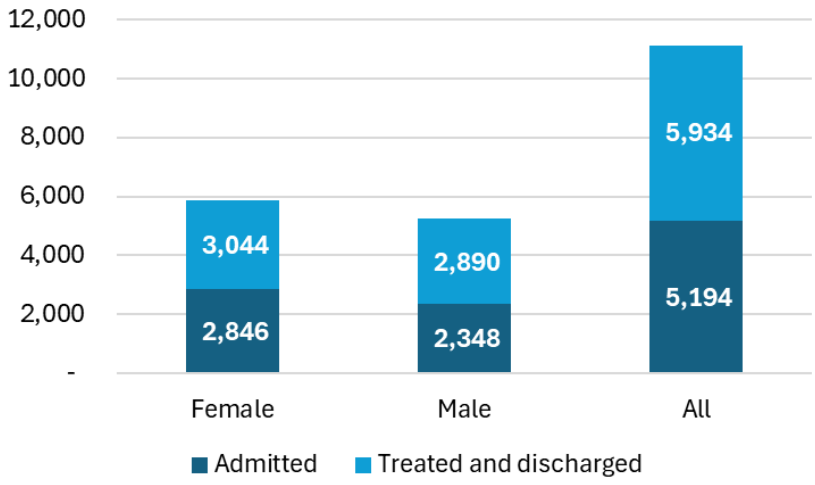
Indicator	Value
ED visits	9,243
Rate per 1,000 population	350

Source: NZIER, Health NZ data (NNPAC), Statistics NZ population estimates by region

Just over half of ED events involving working-age Māori involve no inpatient admission (referred to below as "treated and discharged"). The remaining 47 percent are reflected in acute inpatient hospitalisations.

Figure 8 Breakdown of ED events for working-age Māori

Number of admitted vs treated and discharged events, 2022/23

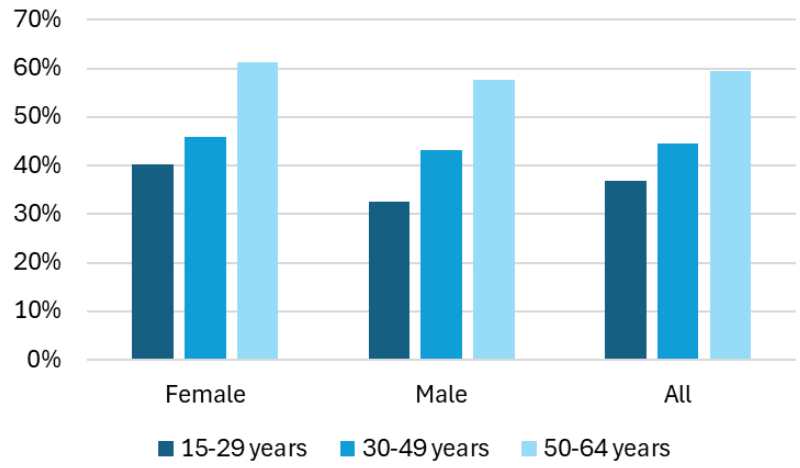


Source: NZIER, Health NZ data (NNPAC)

Admission from ED is more likely as people age, but the age gradient is steeper for working-age Māori males, particularly between the 15-to-29-year age group and the 30-to-49-year age group.

Figure 9 Inpatient admission from ED by age group

Inpatient admissions from ED as a percentage of all ED presentations, 2022/23

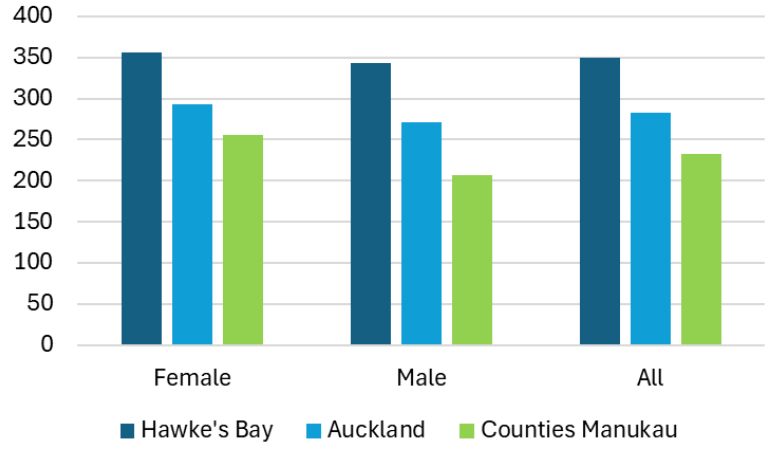


Source: NZIER, Health NZ data (NNPAC)

In 2022/23, Hawke's Bay had the highest rates of ED visits in its Māori working-age population, compared with Auckland and Counties Manukau.

Figure 10 Regional comparison of ED visits by working-age Māori

Rate per 1,000 population, 2022/23



Source: NZIER, Health NZ data (NNPAC), Statistics NZ population estimates by region

Inpatient hospitalisations

On average, from 2019/20 to 2022/23, there were 8,429 inpatient hospitalisations per year involving working-age Māori in Hawke's Bay, a rate of 279 inpatient hospitalisations per 1,000 working-age Māori.

Table 6 Number and rate of inpatient hospitalisations for working-age Māori in Hawke's Bay

Annual average based on 2019/20 to 2022/23

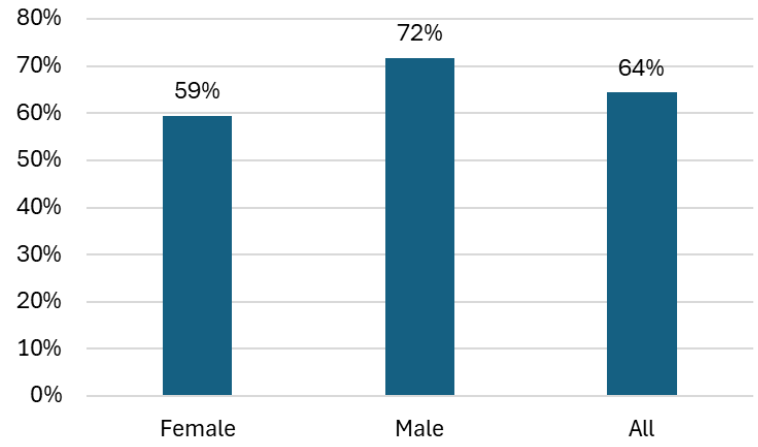
Indicator	Value
Inpatient hospitalisations	8,429
Rate per 1,000 population	279

Source: NZIER, Health NZ data (NMDS), Statistics NZ population estimates by region

In 2022/23, 64 percent of inpatient hospitalisations for working-age Māori in Hawke's Bay were acute admissions. The percentage was significantly higher for males than for females, 72 percent compared with 59 percent.

Figure 11 Acute admissions as a percentage of inpatient hospitalisations for working-age Māori in Hawke's Bay

2022/23

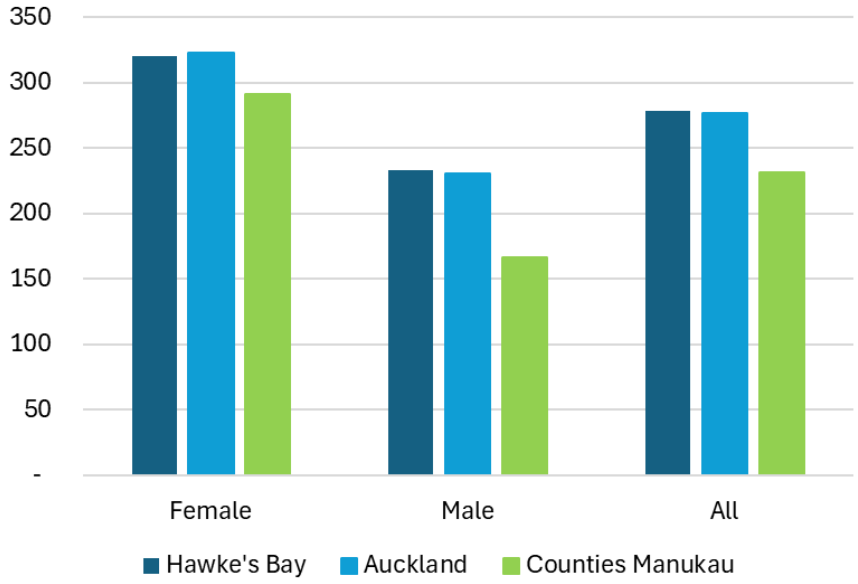


Source: NZIER, Health NZ data (NMDS)

In 2022/23, working-age Māori in Hawke's Bay had a similar rate of inpatient hospitalisations to working-age Māori in Auckland but a higher rate than working-age Māori in Counties Manukau.

Figure 12 Regional comparison of inpatient hospitalisations of working-age Māori

Rate per 1,000 population, 2022/23



Source: NZIER, Health NZ data (NMDS), Statistics NZ population estimates by region

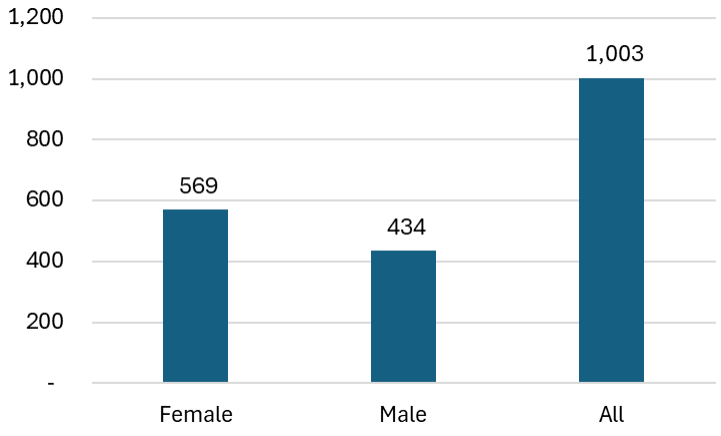
Mental health and addiction services

The PRIMHD data we received from Health NZ contained a large number of records for which no age was recorded. Because our focus is on the working-age population, these data points were removed before conducting our analysis.

The PRIMHD data with an age recorded indicates that working-age Māori in Hawke's Bay had 1,003 contacts with mental health and addiction services in 2022/23 – 569 for females and 434 for males.

Figure 13 Mental health and addiction service interactions with working-age Māori

Number of service interactions, 2022/23

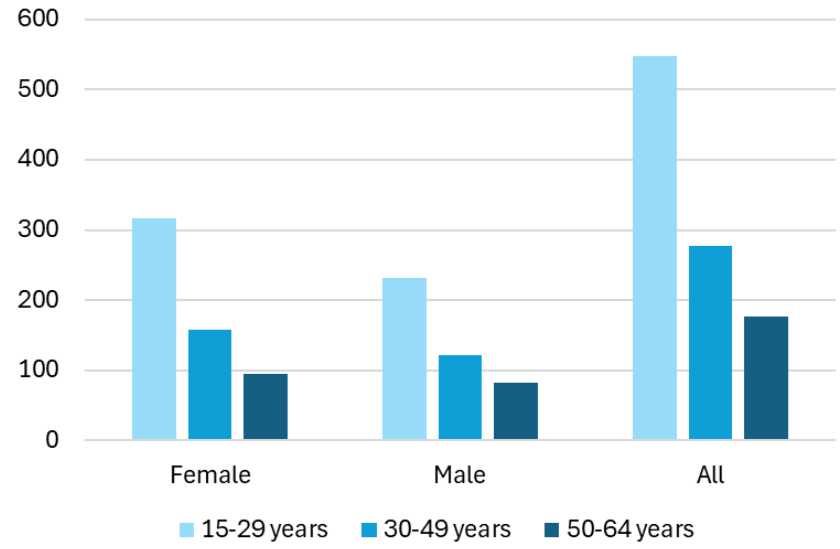


Source: NZIER, Health NZ data (PRIMHD)

The number of mental health and addiction interactions falls with increasing age, although females, whose interactions outnumber males in the 15-to-29-year age group, experience this decrease earlier than males. Males become the main users of these services in the 30-to-49-year age group. Females are the main users in the 50-to-64-year age group.

Figure 14 Mental health and addiction service interactions with working-age Māori, by age group

Number of service interactions, 2022/23



Source: NZIER, Health NZ data (PRIMHD)

Comparing the rates of mental health and addiction services across the three regions shows that Hawke's Bay has a similar rate overall to Auckland and a higher rate than Counties Manukau. Hawke's Bay working-age Māori females, however, have the highest rate of events across the three regions.

Figure 15 Regional comparison of mental health and addiction events for working-age Māori

Rate per 1,000 population, 2022/23

Source: NZIER, Health NZ data (PRIMHD)

5 Priority conditions in Hawke's Bay working-age Māori

The government's Māori health priorities were identified as those which have been found to:

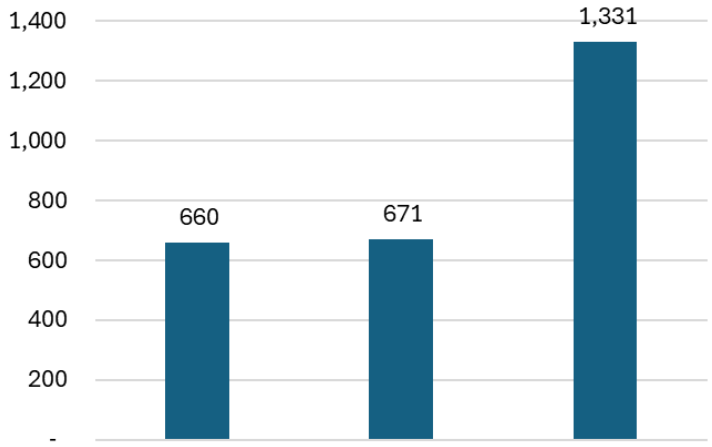
- contribute the most to health loss and health inequity
- provide the greatest opportunities for investment.

We used inpatient data (NMDS) for 2022/23 (the most recent year of data provided) to identify Hawke's Bay Māori with priority health conditions. When people are admitted to hospital, any conditions, diseases and injuries they are experiencing – whether these are the reason for their admission or not – are recorded in the diagnosis fields of the record of that event. By using the latest year of data available to us, we capture all individuals who may have been hospitalised and received a new or recent diagnosis of any of the priority health conditions.

We identified 1,331 working-age Māori with at least one diagnosis of a priority health condition, including 671 males and 660 females.

Figure 16 Hawke's Bay working-age Māori population with an identified priority health condition

Number of people, 2022/23

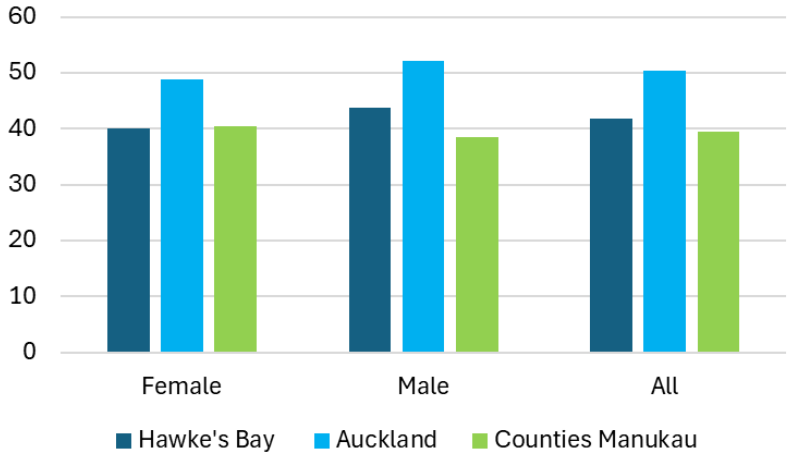


Source: NZIER, Health NZ data (NMDS)

Hawke's Bay's working-age Māori population has a lower proportion of people diagnosed with priority conditions than Auckland's working-age Māori population and a slightly higher proportion than Counties Manukau's working-age Māori population – a difference driven by the higher rate in Hawke's Bay Māori males compared with their Counties Manukau counterparts.

Figure 17 Working-age Māori with any priority health condition diagnosis by region

Rate per 1,000 population, 2022/23



Source: NZIER, Health NZ data (NMDS), Statistics NZ population projections

Comparing the prevalence rate of priority conditions across the three regions shows that Auckland has higher rates of priority condition diagnoses amongst working-age Māori, but Counties Manukau has lower rates of priority condition diagnoses amongst working-age Māori. Given the similar rate of the population diagnosed with any priority condition, the higher prevalence rate in Hawke's Bay means working-age Māori in Hawke's Bay who have a priority condition diagnosis are more likely than working-age Māori in Counties Manukau to have more than one priority condition diagnosis.

Figure 18 Prevalence rates of priority health conditions by region

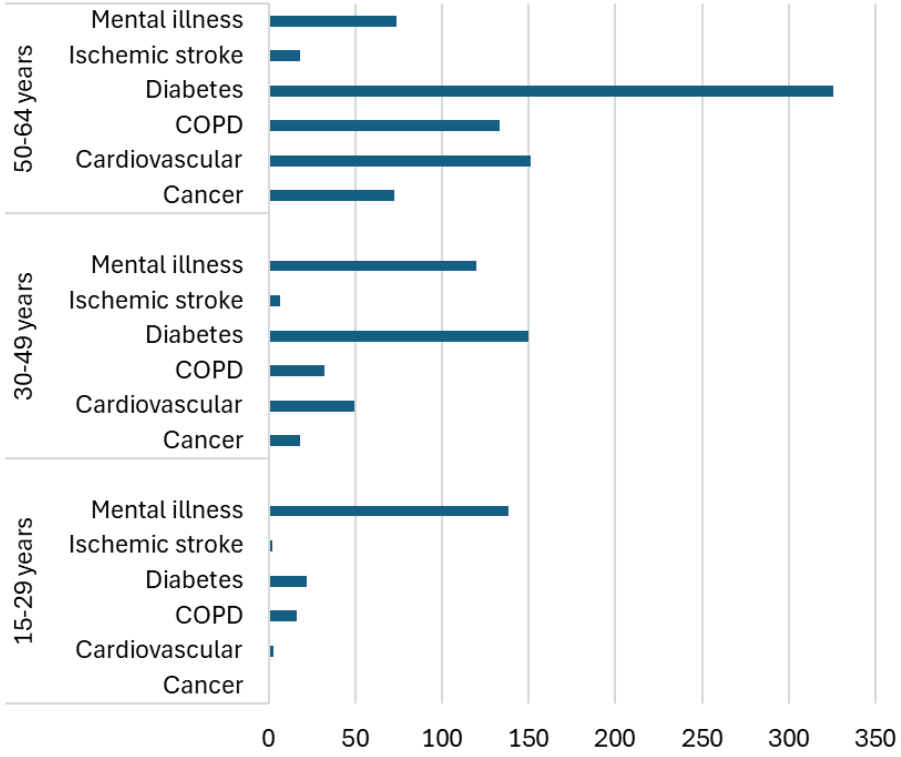
Rate per 1,000 population, 2022/23, based on inpatient diagnosis codes

Source: NZIER, Health NZ data (NMDS), Statistics NZ population estimates

Figure 19 and Table 7 below show the priority condition diagnoses within each demographic grouping in the Hawke's Bay Māori community.

Figure 19 Number of working-age Māori with an inpatient diagnosis of a priority condition

Number of people, 2022/23



Source: NZIER, Health NZ data (NMDS)

Table 7 Number of working-age Māori with an inpatient diagnosis of a priority condition

Number of people, 2022/23

Age Group	Diagnosis	Female	Male	All
15-29 years	Cancer	0	0	0
	Cardiovascular	S	S	S
	COPD	15	S	16
	Diabetes	8	14	22
	Ischemic stroke	S	S	S
	Mental illness	62	76	138
	Total	87	95	181
30-49 years	Cancer	12	6	18
	Cardiovascular	20	29	49
	COPD	16	16	32

Age Group	Diagnosis	Female	Male	All
	Diabetes	85	65	150
	Ischemic stroke	S	S	6
	Mental illness	51	69	120
	Total	188	188	375
50-64 years	Cancer	46	27	72
	Cardiovascular	61	90	151
	COPD	83	50	133
	Diabetes	151	175	325
	Ischemic stroke	12	6	18
	Mental illness	33	41	74
	Total	386	389	773
Total		660	671	1331

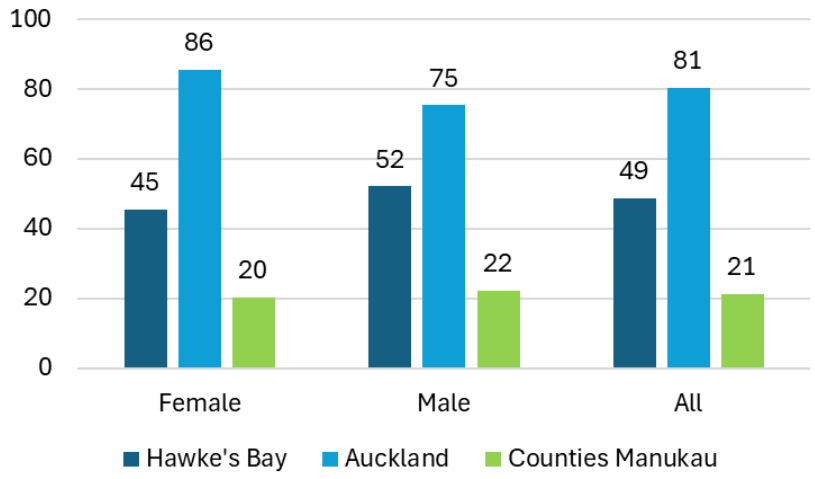
Note: (S) Values between 1 and 5 are suppressed for confidentiality reasons.

Source: NZIER, Health NZ data (NMDS)

The rate of priority health condition diagnoses is substantially lower in the Hawke's Bay Māori population than in the Auckland Māori population, but is more than double that of the Counties Manukau Māori population.

Figure 20 Rate of priority condition diagnosis in regional working-age Māori populations

Rate per 1,000 population, 2022/23



Source: NZIER, Health NZ data (NMDS)

6 Priority conditions and productivity losses in Hawke's Bay working-age Māori

In this section, we identify the productivity losses experienced by working-age Māori with priority health conditions.

Productivity losses include:

- Loss of working years due to premature mortality
- Absenteeism due to the need to use health services, including inpatient hospitalisations, ED visits during business hours, outpatient events, and mental health and addiction attendances
- Ongoing absenteeism, presenteeism and reduced employment due to poor health
- Early retirement due to poor health.

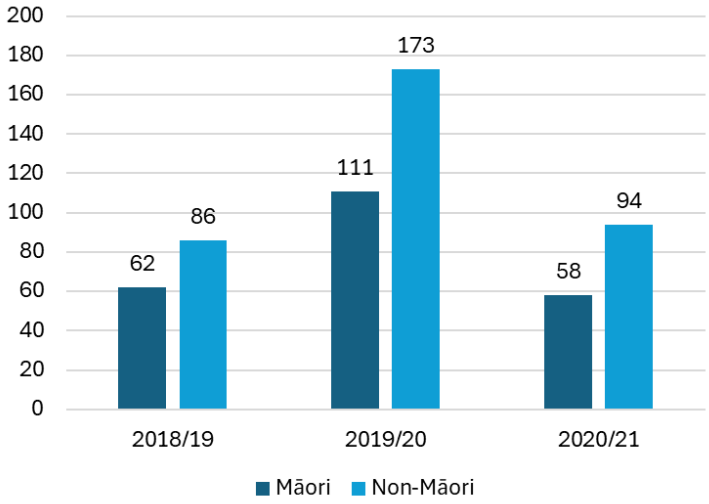
6.1 Premature mortality

Premature mortality is a significant health concern. By definition, premature mortality means death before age 75. When mortality affects people of working age, it reduces average lifetime productivity and whānau wellbeing.

Mortality data, particularly in younger people, are highly variable from year to year. Te Whatu Ora provided three full financial years of mortality data, and this shows that the number of deaths in the Hawke's Bay Māori working-age population over these three years ranged from 52 to 94.

Figure 21 Deaths in the Hawke's Bay working-age population

2018/19 to 2020/21



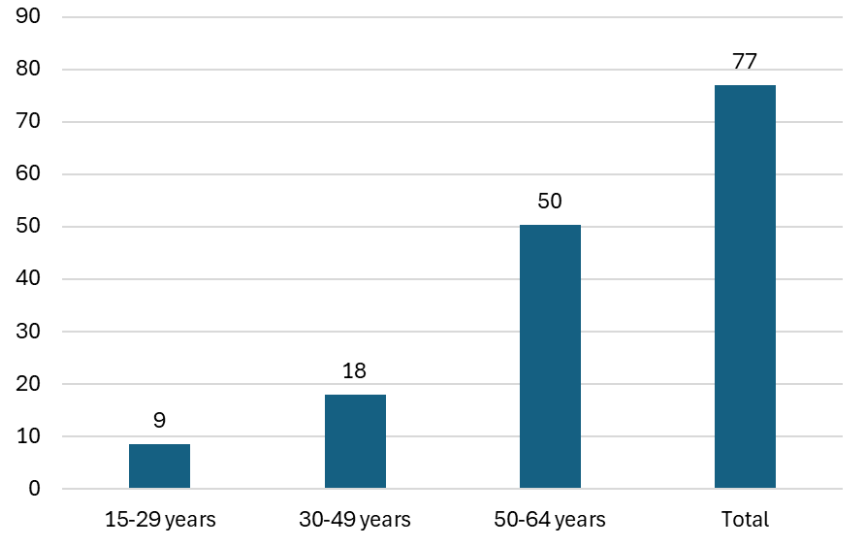
Source: NZIER, Health NZ (Mortality Collection)

On average, over the three years, there were 67 deaths of working-age Māori. Within the age groups, 15- to 29-year-olds experienced, on average, eight deaths per year, while 30- to

49-year-olds and 50- to 64-year-olds experienced 17 deaths and 43 deaths on average per year, respectively.

Figure 22 Average annual deaths amongst Hawke's Bay working-age Māori

2018/19 to 2020/21

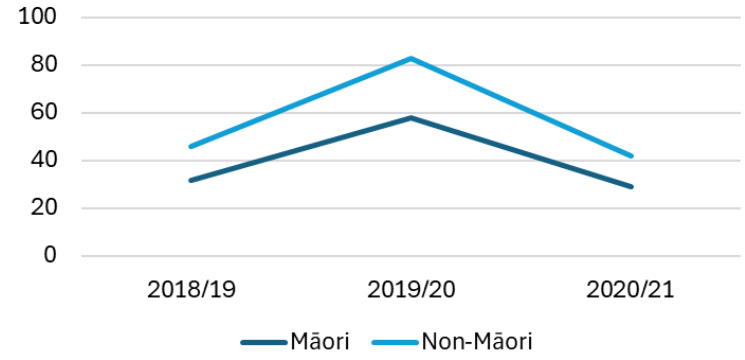


Source: NZIER, Health NZ data (Mortality Collection)

Comparison of Māori and non-Māori working-age mortality in Hawke's Bay over the three-year timeframe of the dataset confirms that Māori experience more deaths from priority health conditions. Both Māori and non-Māori experienced a peak in deaths due to priority health conditions in 2019/20 (see Figure 23 below).

Figure 23 Māori and non-Māori working-age deaths to priority health conditions in Hawke's Bay

2018/19 to 2020/21

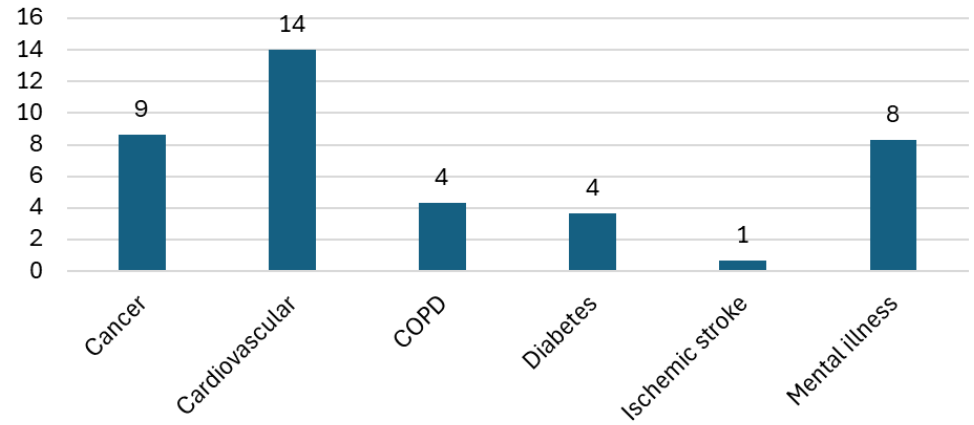


Source: NZIER, Health NZ data (Mortality Collection)

Figure 24 below shows that working-age Māori in Hawke's Bay experience approximately 50 deaths each year from causes that could potentially be prevented or treated with effective interventions to significantly extend lives.

Figure 24 Number of working-age Māori deaths in Hawke's Bay by priority health condition

Annual average 2018/19 to 2020/21

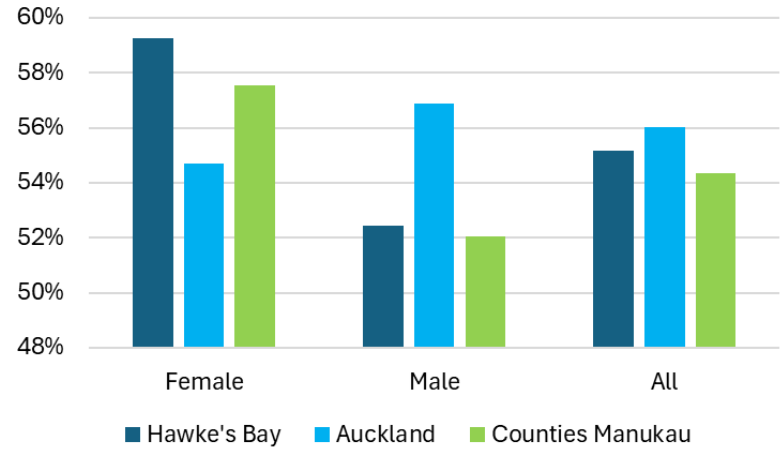


Source: NZIER, Health NZ data (Mortality Collection)

Priority conditions are responsible for 55 percent of all working-age Māori deaths in Hawke's Bay – more than in Counties Manukau but less than in Auckland. Priority conditions cause nearly 60 percent of female Māori working-age deaths in Hawke's Bay – the highest rate of the three regions.

Figure 25 Percentage of Māori working-age deaths attributable to priority conditions

2018/19 to 2020/21



Source: NZIER, Health NZ data (Mortality Collection)

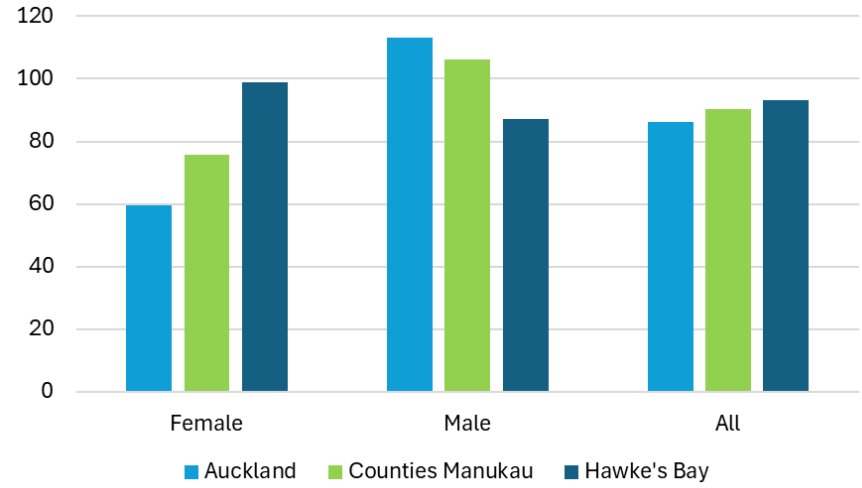
Based on the most recent year of mortality data (2020/21) and the 2020 estimated populations of Hawke's Bay, Auckland and Counties Manukau regions, the overall Māori working-age mortality rate to priority health conditions is slightly higher in Hawke's Bay (93.3 per 100,000 population, compared with 86.3 for Auckland and 90.3 for Counties Manukau) (see Figure 26 below).

However, while the overall difference is small, the difference between regions for males and females is more significant. Hawke's Bay working-age males are less likely to die from priority health conditions during their working life compared with Auckland and Counties Manukau males. But Hawke's Bay working-age females are significantly more likely to die from priority health conditions during their working lives compared with their Auckland and Counties Manukau counterparts.

The difference between Māori working-age female mortality rates translates into a 66 percent higher chance of dying before age 65 in Hawke's Bay compared with Auckland.

Figure 26 Working-age Māori mortality rate to priority health conditions by region

Deaths per 100,000 population, by sex, 2020/21



Source: NZIER, Health NZ data (Mortality Collection)

Looking closely at mortality rates by priority health condition in the most recent year of data (2020/21) reveals that Hawke's Bay working-age mortality rates are highest and significantly higher for:

- cancer deaths in working-age females
- COPD deaths in working-age males.

Table 8 Mortality rates for priority health conditions by region and condition

2020/21

Priority condition	Region	Female	Male	All
Cancer	Auckland	13.3	33.3	23.2
	Counties Manukau	25.2	20.6	23.0
	Hawke's Bay	43.3	13.4	28.9
Cardiovascular	Auckland	26.5	53.3	39.8
	Counties Manukau	9.5	44.5	26.3
	Hawke's Bay	18.6	33.5	25.7
COPD	Auckland	6.6	6.7	6.6

Priority condition	Region	Female	Male	All
	Counties Manukau	15.8	10.3	13.1
	Hawke's Bay	12.4	20.1	16.1
Diabetes	Auckland	6.6	0.0	3.3
	Counties Manukau	15.8	10.3	13.1
	Hawke's Bay	18.6	0.0	9.6
Ischemic stroke*	Auckland	0.0	0.0	0.0
	Counties Manukau	0.0	0.0	0.0
	Hawke's Bay	0.0	0.0	0.0
Mental illness	Auckland	6.6	20.0	13.3
	Counties Manukau	9.5	20.6	14.8
	Hawke's Bay	6.2	20.1	12.9

*No ischemic stroke deaths in working-age Māori were recorded in 2020/21 for any of the three regions.

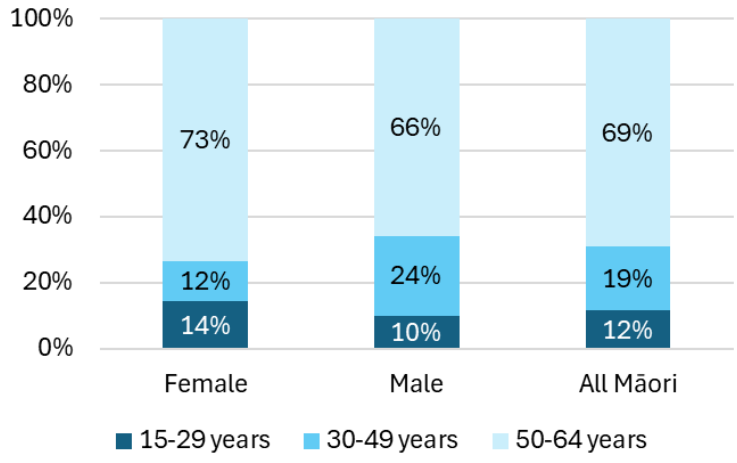
Source: NZIER, Health NZ data (Mortality Collection), Statistics NZ population estimates by region

Sixty-nine percent of all working-age Māori deaths due to priority health conditions occur in people aged 50 to 64 years, meaning nearly a third of working-age Māori deaths due to these conditions occur even before the age of 50.

Working-age females are more likely than males to die between the ages of 15 and 29 years or 50 and 64 years, while males are more likely than females to die between the ages of 30 and 49 years.

Figure 27 Proportion of Māori working-age deaths to priority conditions by age group

Annual average 2018/19 to 2020/21



Source: NZIER, Health NZ data (Mortality Collection)

The main causes of death by age group are:

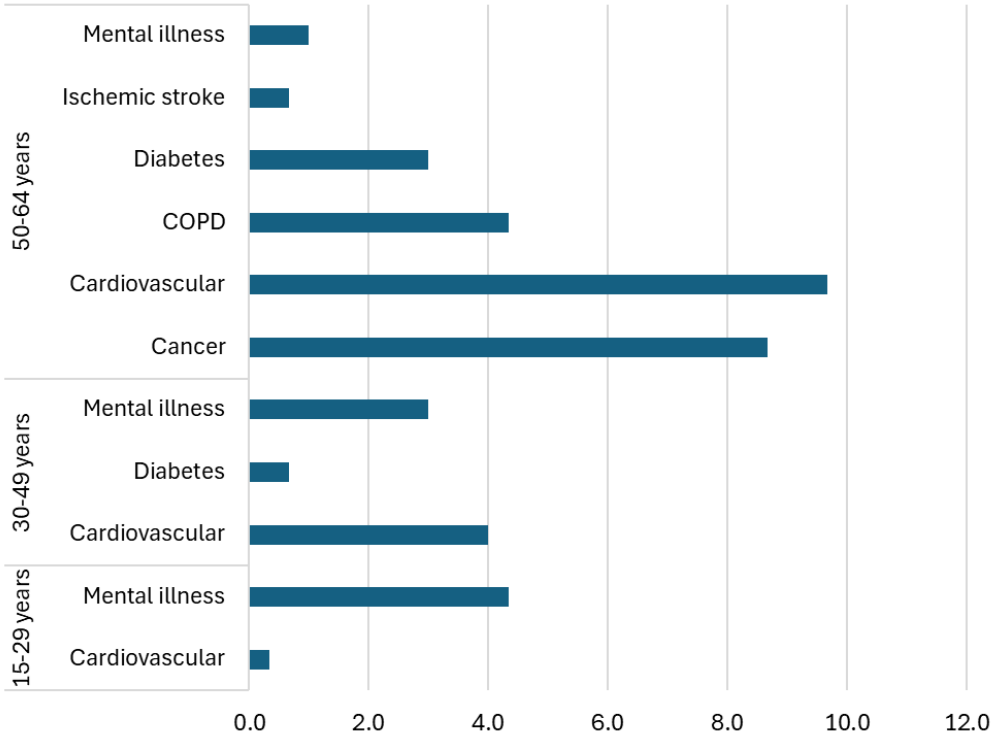
- mental illness for Māori aged 15 to 29 years

- cardiovascular disease, cancer and mental illness for Māori aged 30 to 49 years
- cancer and cardiovascular disease for Māori aged 50 to 64 years.

See Figure 28 below.

Figure 28 Number of working-age deaths by priority condition and age group

Hawke's Bay Māori, annual average 2018/19 to 2020/21



Source: NZIER, Health NZ data (Mortality Collection)

Productivity losses depend on age at death, as these are estimated based on the remaining working life that people may have had if they had not died prematurely.

Death during the working years of a person's life represents an irreversible loss of future production. A single death due to mental illness (including self-harm), for example, with an average age at death of 31 years, represents an average loss of 34 years of productivity that could have been possible if that person had received services that effectively addressed the underlying causes and supported them to live a normal life.

The priority health conditions result in working-age deaths with an average age at death of 50 years and range from 31 years for deaths due to mental illness (including self-harm) to 60 years for deaths due to ischemic stroke. While there is little difference in average age at death between males and females, it is notable that over the three years of data we analysed, males die earlier on average from diabetes, while females die earlier on average as a result of cardiovascular disease, COPD, ischemic stroke, and mental illness (See Table 9 below).

Table 9 Average age at death in working-age Māori for priority health conditions

Average age at death in years, females and males, 2018/19 to 2020/21

	Female	Male	All
Cancer	55	55	55
Cardiovascular	50	52	51
COPD	57	60	58
Diabetes	58	55	57
Ischemic stroke	56	63	60
Mental illness	29	33	31
All priority health conditions	50.5	50.3	50.4

Source: NZIER, Health NZ data (Mortality Collection)

If these working-age deaths were prevented, the total potential working years saved would amount to 1,596 years.

Table 10 Total potential working years lost to priority health conditions

Hawke's Bay Māori, based on the average number of deaths per annum from 2018/19 to 2020/21

	Potential working years lost
Female	654
Male	942
Total	**1,596**

Source: NZIER, Health NZ data (Mortality Collection)

Table 11 below shows the average value of lost productivity for a working-age Māori death due to priority health conditions.

Table 11 Average value of lost productivity per Hawke's Bay working-age Māori death

By priority condition

	Female	Male
Cancer	$464,640	$589,462
Cardiovascular	$650,959	$774,414
COPD	$377,260	$290,090
Diabetes	$303,288	$556,972
Ischemic stroke	$399,452	$116,036
Mental illness	$1,597,808	$1,864,310

Source: NZIER, Health NZ (Mortality Collection), Infometrics 2024, Statistics NZ

Table 12 below shows the total value of lost productivity for working-age Māori deaths in Hawke's Bay each year. In total, mortality in Hawke's Bay working-age Māori results in over

$114 million of lost productivity annually. Mental illness, with a high number of productive years lost per death due to the young age at death on average, and the relatively high number of deaths attributable to mental illness, is the most important contributor to lost productivity, with approximately $44 million lost to mental illness-related deaths annually.

Table 12 Total value of lost productivity from Hawke's Bay working-age Māori deaths

By priority condition

	Female	Male	Total
Cancer	$14,868,493	$14,736,562	$29,605,054
Cardiovascular	$7,160,548	$24,006,823	$31,167,371
COPD	$2,263,562	$2,030,629	$4,294,190
Diabetes	$1,819,726	$2,784,862	$4,604,588
Ischemic stroke	$399,452	$116,036	$515,488
Mental illness	$15,978,082	$27,964,657	$43,942,738
Total	**$42,489,861**	**$71,639,568**	**$114,129,429**

Source: NZIER, Health NZ data (Mortality Collection), Infometrics 2024, Statistics NZ

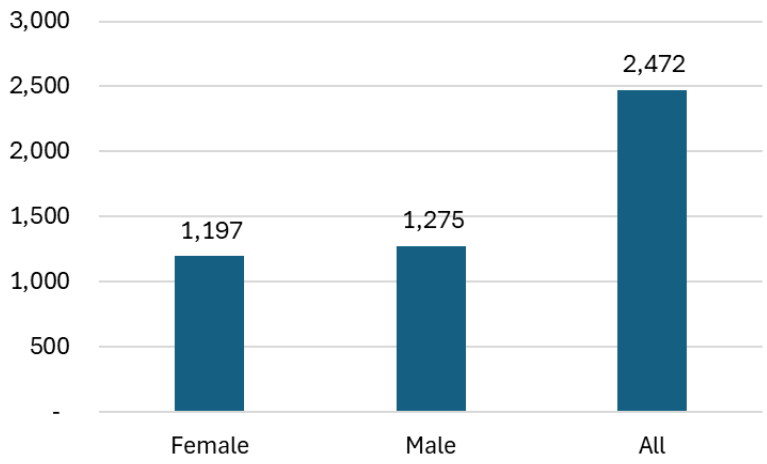
6.2 Use of health services by people with priority conditions

6.2.1 Inpatient hospitalisations

In 2022/23, the 1,331 working-age Māori with a priority health condition experienced 2,472 inpatient hospitalisations, an average of just under two per person in 2022/23 alone.

Figure 29 Number of inpatient hospitalisations involving working-age Māori with priority health conditions

Number of events, 2022/23

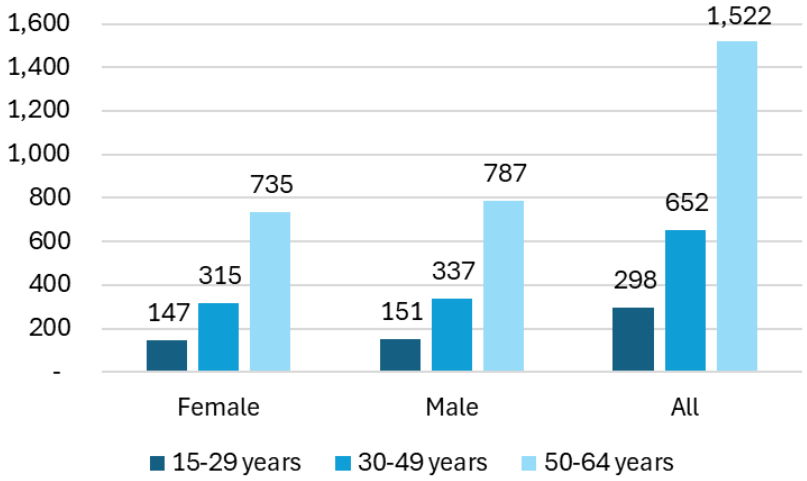


Source: NZIER, Health NZ data (NMDS)

The age gradient of inpatient hospitalisations associated with priority health conditions is steep. The number of inpatient events involving working-age Māori with priority health conditions more than doubles across each change of life stage.

Figure 30 Number of inpatient events involving working-age Māori with priority health conditions by age group

Number of events, 2022/23

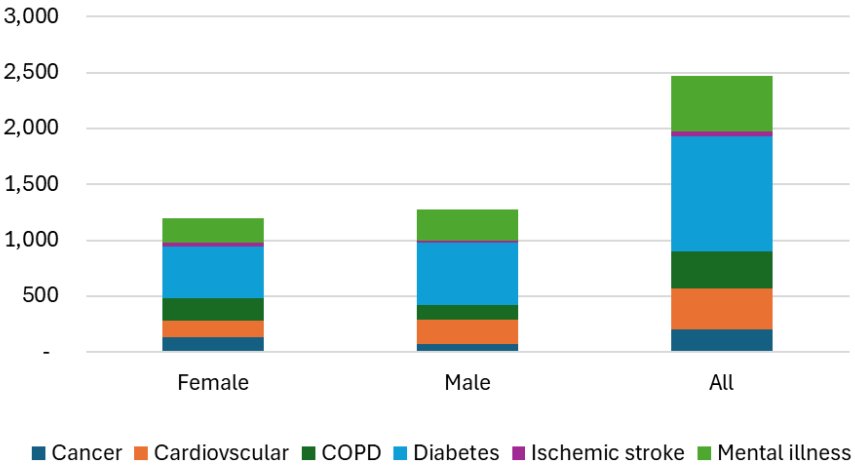


Source: NZIER, Health NZ data (NMDS)

Diabetes was the most common priority health condition in hospitalisations of working-age Māori with any priority health condition diagnosis, followed by a diagnosis of mental illness.

Figure 31 Breakdown of priority conditions in hospitalisations of working-age Māori

Number of events, 2022/23



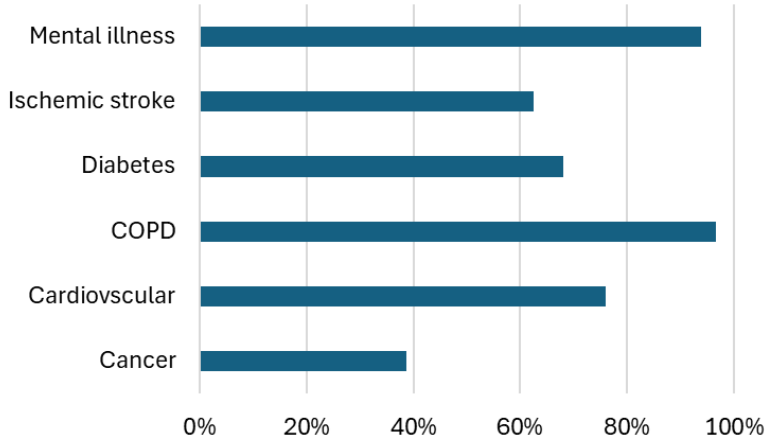
Note: The total number of priority conditions exceeds those identified as having priority conditions due to comorbidities. This table breaks down the total diagnoses of priority conditions that double count individual people.

Source: NZIER, Health NZ data (NMDS)

Amongst working-age Māori hospitalised with priority health conditions, those with mental illness and COPD are most likely to have acute inpatient hospitalisations, with almost all Māori with mental illness or COPD experiencing an acute hospitalisation in 2022/23. Working-age Māori with a cancer diagnosis are least likely to have acute inpatient hospitalisations.

Figure 32 Probability of acute inpatient hospitalisation for working-age Māori

Percent of people experiencing at least one event, 2022/23

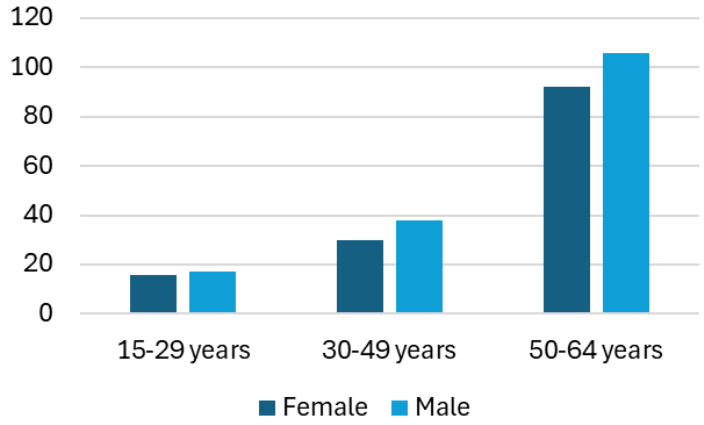


Source: NZIER, Health NZ data (NMDS)

Working-age Māori males experience a higher rate of acute inpatient hospitalisations, with the gap between males and females widening at older ages within the working-age population.

Figure 33 Male and female rates of acute inpatient hospitalisations for working-age Hawke's Bay Māori with priority health conditions

Rate per 1,000 population, 2022/23

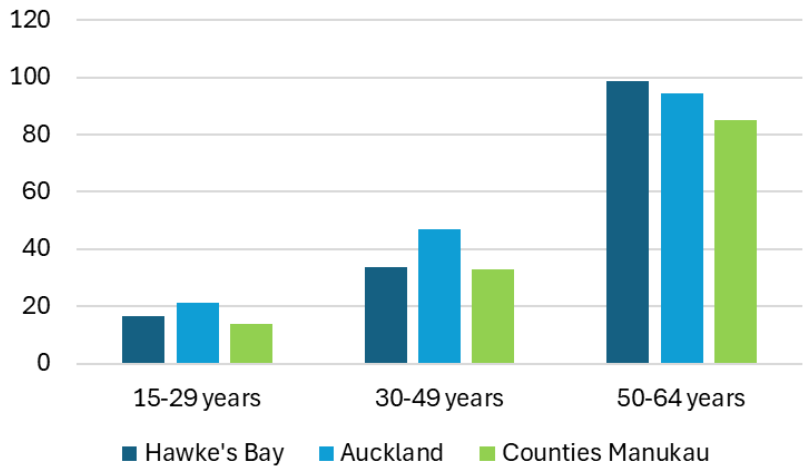


Source: NZIER, Health NZ data (NMDS), Statistics NZ population projections

The rate of acute inpatient hospitalisations is comparable to other regions' working-age Māori population, except for Māori aged 50 to 64 years, where Hawke's Bay has the highest rate of acute inpatient hospitalisations.

Figure 34 Regional comparison of acute inpatient hospitalisation rates for working-age Māori with priority conditions

Rate per 1,000 population, 2022/23

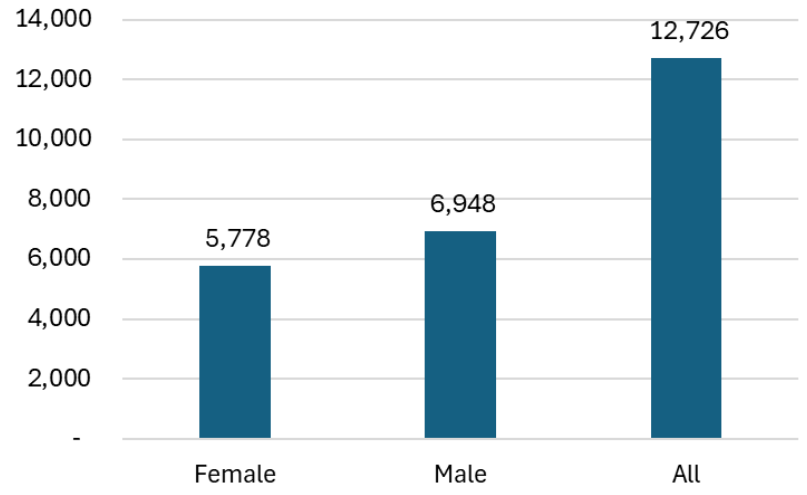


Source: NZIER, Health NZ data (NMDS), Statistics NZ population projections

Time spent in an inpatient ward often means productive time is lost. In total, Hawke's Bay working-age Māori spent 12,726 days in inpatient wards due to priority health conditions, slightly more for males than females.

Figure 35 Total inpatient bed days of working-age Māori with priority health conditions

Total days, 2022/23

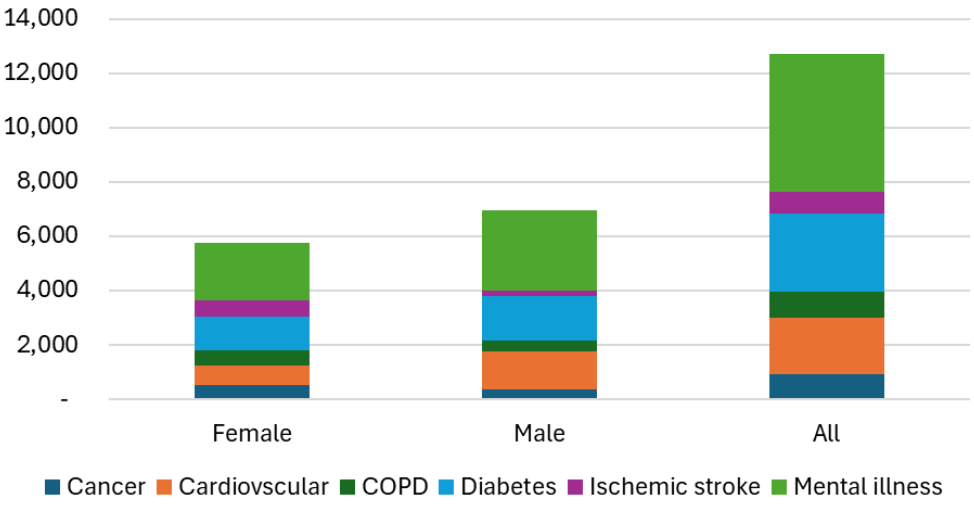


Source: NZIER, Health NZ data (NMDS)

Although diabetes was the most common priority condition in inpatient events for working-age Māori with a priority condition diagnosis, the priority condition responsible for the largest share of inpatient bed days for working-age Māori is mental illness, followed by diabetes and cardiovascular disease.

Figure 36 Breakdown of inpatient bed days by priority conditions

Number of days, 2022/23



Source: NZIER, Health NZ data (NMDS)

In total, mental illness (which here includes mental health conditions, self-harm and substance use disorders) contributed 40 percent of bed days for working-age Māori with priority health conditions. While the top three priority conditions for inpatient bed days are the same for males and females, those conditions contribute more to males' inpatient bed days than to inpatient bed days for females.

Table 13 Percentage of inpatient bed days by priority condition

Percentage of total priority condition bed days, 2022/23

	Female	Male	All
Cancer	9%	6%	7%
Cardiovascular	12%	20%	16%
COPD	10%	6%	8%
Diabetes	21%	24%	22%
Ischemic stroke	10%	3%	6%
Mental illness	37%	42%	40%

Source: NZIER, Health NZ data (NMDS)

The time spent in hospital with diagnoses of priority health conditions, adjusted to reflect our regular business hours approach and employment rates, is valued as shown in Table 14 below. Length of stay is the key driver of the average value of lost productivity for inpatient hospitalisations, with mental illness being the highest cost condition on average.

Table 14 Average value of lost productivity per inpatient hospitalisation with a priority health condition

By priority condition, 2022/23

Condition	Female	Male
Cancer	$771	$1,320
Cardiovascular	$919	$1,582
COPD	$535	$792
Diabetes	$501	$736
Ischemic stroke	$3,829	$2,655
Mental illness	$1,886	$2,642

Source: NZIER, Health NZ (Mortality Collection), Infometrics 2024, Statistics NZ

Table 15 below shows the total value of lost productivity due to inpatient hospitalisations of working-age Māori with priority health conditions each year. In total, priority health conditions in Hawke's Bay working-age Māori result in over $2.8 million of lost productivity annually, even before accounting for periods of work absenteeism and presenteeism associated with these conditions.

Table 15 Total value of lost productivity from Hawke's Bay working-age Māori inpatient hospitalisations with priority conditions

By priority condition, 2022/23

	Female	Male	Total
Cancer	$103,378	$96,346	$199,724
Cardiovascular	$135,157	$344,845	$480,001
COPD	$108,547	$101,351	$209,898
Diabetes	$232,983	$411,161	$644,144
Ischemic stroke	$114,864	$47,798	$162,662
Mental illness	$411,214	$737,237	$1,148,451
Total	**$1,106,143**	**$1,738,737**	**$2,844,880**

Source: NZIER, Health NZ (Mortality Collection), Infometrics 2024, Statistics NZ

6.2.2 ED visits

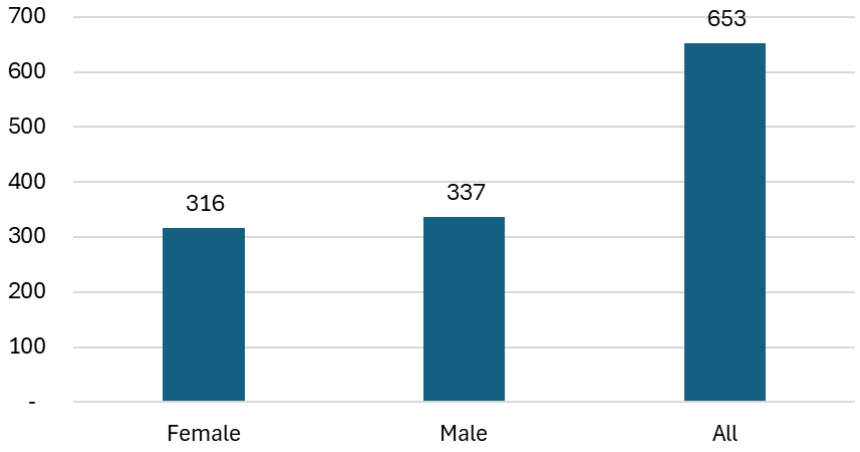
Emergency department visits are a key indicator of health, health services access, and lost productive time. Health conditions that are not well-managed often result in acute illness, and without good access to community-based services, people are forced to use EDs to access care. Waits in the ED can be many hours long, so even when patients can be quickly treated and discharged for relatively minor ailments, an ED visit during working hours would not typically be expected to result in a return to work that day. Even an ED visit outside of work hours is likely to mean the person has not slept well and increases the probability of next-day absenteeism.

However, we conservatively estimate the lost value of productivity based only on visits to the ED that occurred during regular business hours.

In total, 653 working-age Hawke's Bay Māori with a priority health condition presented to the ED during regular business hours in 2022/23 – slightly more males than females.

Figure 37 Number of working-age Māori with a priority condition presenting to the ED in regular business hours

Number of people, 2022/23

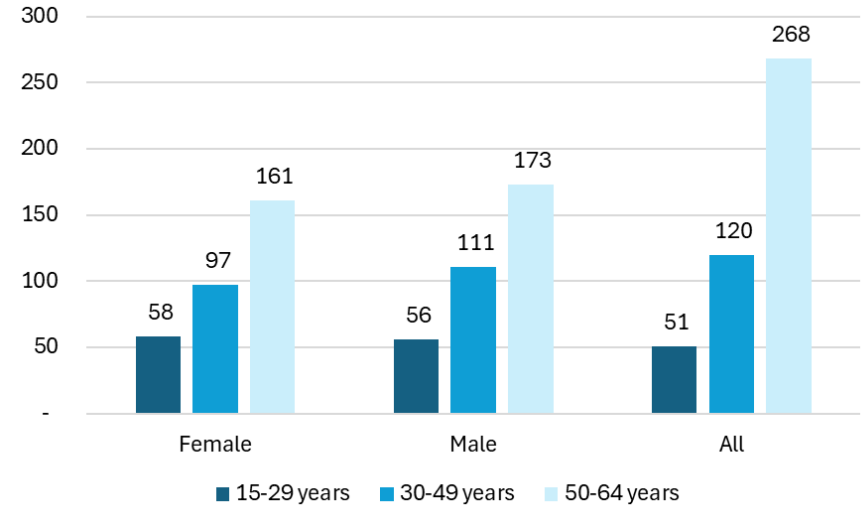


Source: NZIER, Health NZ data (NNPAC)

The age gradient of ED presentations for working-age Māori with priority health conditions shows an almost doubling of the number of ED presentations at each subsequent life stage and a steeper gradient for males than females. In both 30- to 49-year-olds and 50- to 64-year-olds, males with priority health conditions have more ED visits than females.

Figure 38 Working-age Māori with a priority condition presenting to ED in regular business hours by age group

Number of people, 2022/23



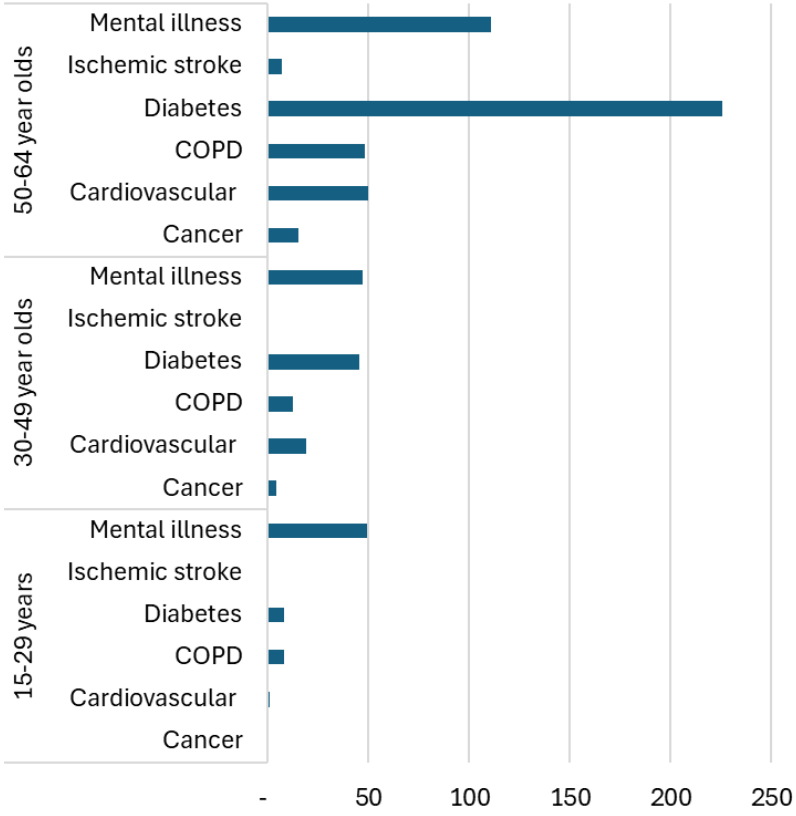
Source: NZIER, Health NZ data (NNPAC)

For working-age Māori aged 15 to 29 years presenting to ED, the most common previous diagnosis is mental illness, which dominates all other priority conditions in this age group. As people move into the 30-to-49-year age group, those presenting to the ED continue to have recent diagnoses of mental illness, but diabetes becomes a common priority condition as well.

In the oldest working-age group, 50 to 64 years, diabetes is the dominant priority condition amongst Māori presenting to ED, with more than double the number of people having this diagnosis compared to the next most common diagnosis, mental illness.

Figure 39 Specific priority conditions in working-age Māori presenting to ED

Number of people, 2022/23



Source: NZIER, Health NZ data (NNPAC and NMDS)

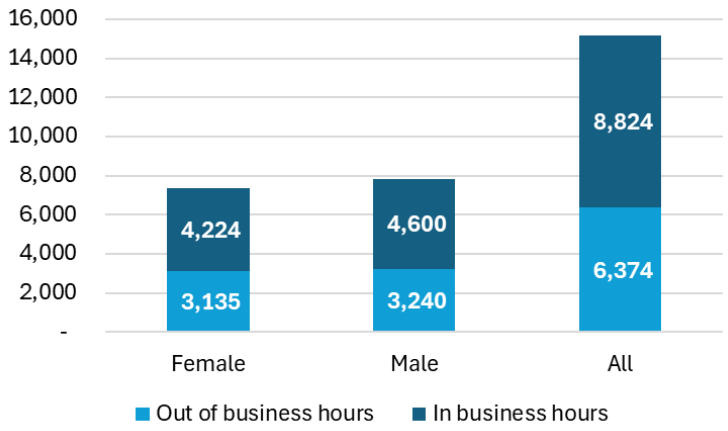
The average time spent in the ED in 2022/23 by people with priority health conditions was 5.2 hours. There was no difference between males and females, but older people tended to spend more time in the ED than younger people (5.6 hours for 50- to 64-year-olds compared with 4.2 hours for 15- to 29-year-olds).

In total, working-age Māori with priority health conditions spent over 15,000 hours (the equivalent of 633 24-hour days) in the ED in 2022/23, with slightly more than half being working-age males.

Using time of arrival and discharge from ED, the data reveal that most hours spent in the ED by working-age Māori are during regular business hours. In total, 8,824 business hours were spent in ED by working-age Māori with priority health conditions in 2022/23, with a similar proportion for males and females – the equivalent of around 1,100 working days.

Figure 40 Time in ED in and out of business hours for working-age Māori with priority health conditions

Total hours, 2022/23



Source: NZIER, Health NZ data (NNPAC)

We estimate the value of potential productivity lost to ED visits by conservatively assuming that only people in the ED during regular business hours would be absent from work on the day they visited the ED.

The result is that ED visits by working-age Māori with priority health conditions result in a loss of potential productivity worth nearly $203,000 annually.

Table 16 Total value of lost productivity due to Hawke's Bay working-age Māori visiting the ED with a priority health condition

By priority condition

Condition	Female	Male	Total
Ischemic stroke	$4,090	$998	$5,468
Cancer	$5,262	$4,505	$9,996
Cardiovascular	$14,311	$20,962	$35,191
COPD	$18,118	$16,373	$35,210
Diabetes	$25,589	$41,943	$67,025
Mental illness	$17,323	$33,287	$49,871
Total	$84,693	$118,068	$202,761

Source: NZIER, Health NZ (Mortality Collection), Infometrics 2024, Statistics NZ

6.2.3 Outpatient events

Attending an outpatient event can be a regular occurrence for people with long-term conditions. As most outpatient services are provided face-to-face and from a limited number of locations (typically hospitals), the travel time involved in accessing outpatient care can be an important cost for patients in regions where the population is as geographically spread as in Hawke's Bay. Some services involve patients being on-site for hours, such as infusions and dialysis or where there are significant wait times in clinics.

For the purpose of estimating productivity costs, we conservatively assume:

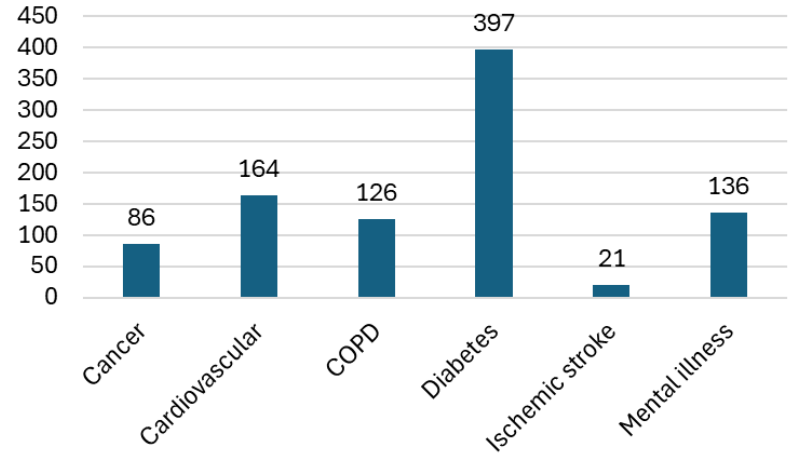
- Only face-to-face outpatient events involve productivity losses
- A face-to-face outpatient event results in a loss of half a day of work for people who are employed.

In total, 930 of the 1,331 working-age Māori identified as having a priority condition attended face-to-face outpatient events in 2022/23.

Forty-three percent of working-age Māori attending outpatient appointments with a priority condition had diabetes as a primary diagnosis – 397 people.

Figure 41 Number of people in outpatient services by primary priority condition

Number of people, 2022/23

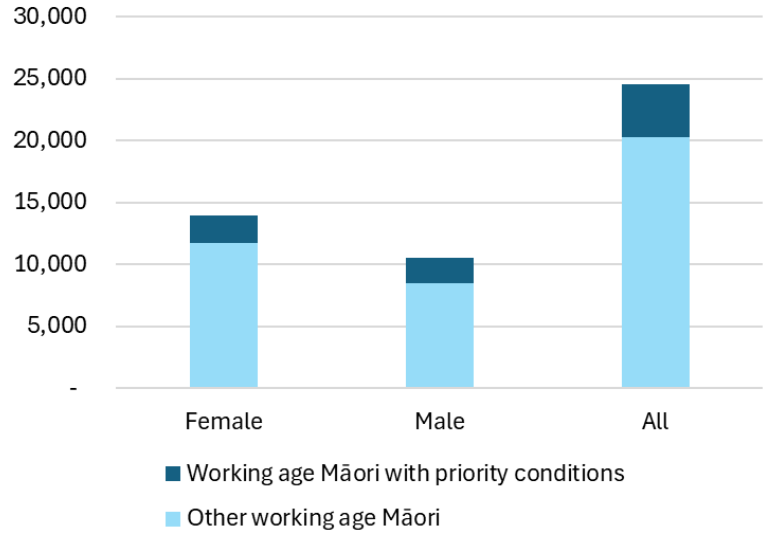


Source: NZIER, Health NZ data (NNPAC)

Working-age Māori with priority conditions make up around 21 percent of outpatient appointments involving working-age Māori – 19 percent for females and 24 percent for males.

Figure 42 Breakdown of face-to-face outpatient attendances by priority condition status

Number of events, 2022/23

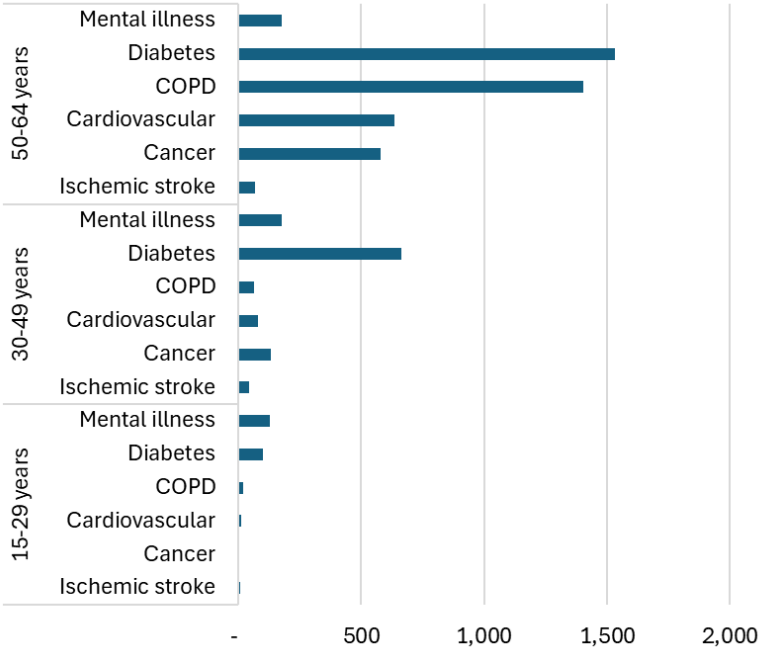


Source: NZIER, Health NZ data (NNPAC)

The most common priority conditions in people visiting outpatient services are mental illness and diabetes in 15- to 29-year-olds, diabetes in 30- to 49-year-olds, and diabetes and COPD in 50- to 64-year-olds.

Figure 43 Face-to-face outpatient events by age group and priority condition

Number of events, 2022/23

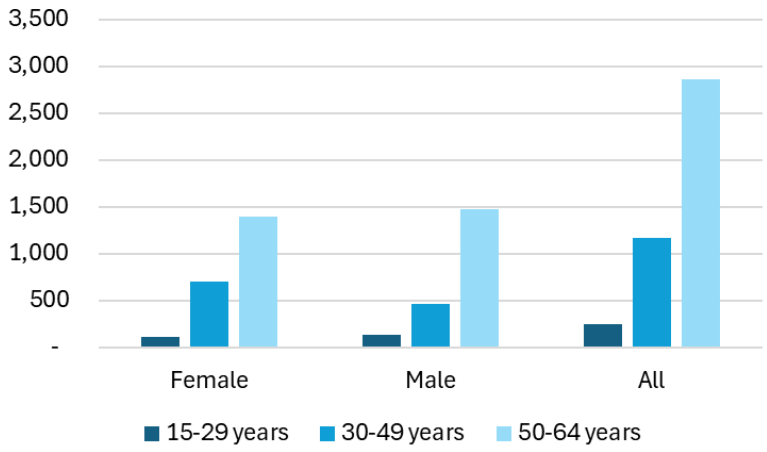


Source: NZIER, Health NZ data (NNPAC)

The age gradient for outpatient visits is similar overall for males and females, but males increase their outpatient visits more between the 30-to-49-year age group and the 50-to-64-year age group.

Figure 44 Total face-to-face outpatient events with priority conditions by age group

Number of events, 2022/23



Because of the time involved in accessing outpatient appointments and their Monday to Friday business hours service delivery model, each attendance at a face-to-face outpatient appointment is expected to cost between $739 and $967 in lost productivity.

Table 17 Average value of lost productivity per outpatient attendance by working-age Māori with a priority health condition

2022/23

Condition	Female	Male
Any priority health condition	$92.47	$120.87

Source: NZIER, Health NZ (NNPAC), Infometrics 2024, Statistics NZ

In total, outpatient attendances by working-age Māori with priority health conditions result in a loss of productivity worth over $4.3 million annually.

Table 18 Total value of lost productivity per outpatient attendance by working-age Māori with a priority health condition

2022/23

Condition	Female	Male	Total
Ischemic stroke	$6,935	$4,253	$11,188
Cancer	$47,620	$18,123	$65,743
Cardiovascular	$29,959	$37,264	$67,223
COPD	$82,664	$54,925	$137,589

Condition	Female	Male	Total
Diabetes	$98,014	$114,380	$212,394
Mental illness	$16,644	$28,110	$44,753
Total	**$281,836**	**$257,055**	**$538,890**

Source: NZIER, Health NZ (NNPAC), Infometrics 2024, Statistics NZ

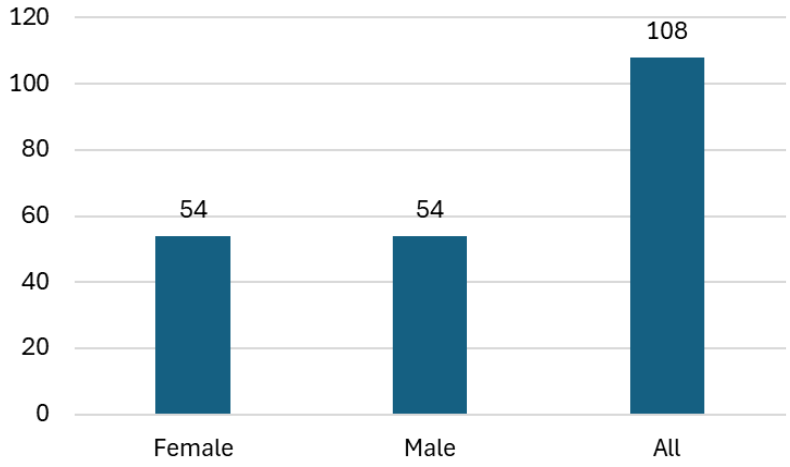
6.2.4 Mental health and addiction attendances

The PRIMHD data we received from Health NZ contained a large number of records, for which no age was recorded. Because our focus is on the working-age population, these data points were removed before conducting our analysis. However, removing these data points and the likelihood that incomplete recording of age in PRIMHD data affects the working-age population as much as other age groups means our estimates of working-age impacts are likely to underestimate the true impact.

PRIMHD data indicates that 108 working-age Māori in Hawke's Bay accessed mental health and addiction services in 2022/23 – 54 females and 54 males.

Figure 45 Working-age Māori accessing mental health and addiction services in Hawke's Bay

Number of people, 2022/23

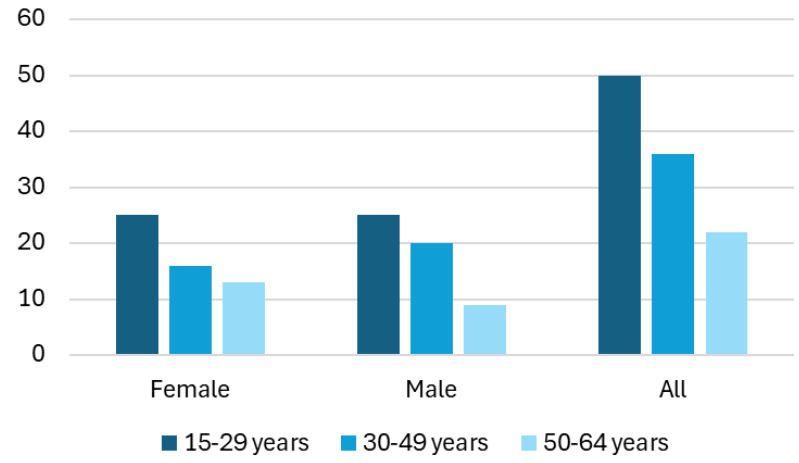


Source: NZIER, Health NZ data (PRIMHD)

The number of working-age Māori accessing mental health and addiction services falls with increasing age, although females experience this decrease earlier than males. Males are the main users of these services in the 30-to-49-year age group, but females are the main users in the 50-to-64-year age group.

Figure 46 Working-age Māori using mental health and addiction services in Hawke's Bay

Number of people, 2022/23

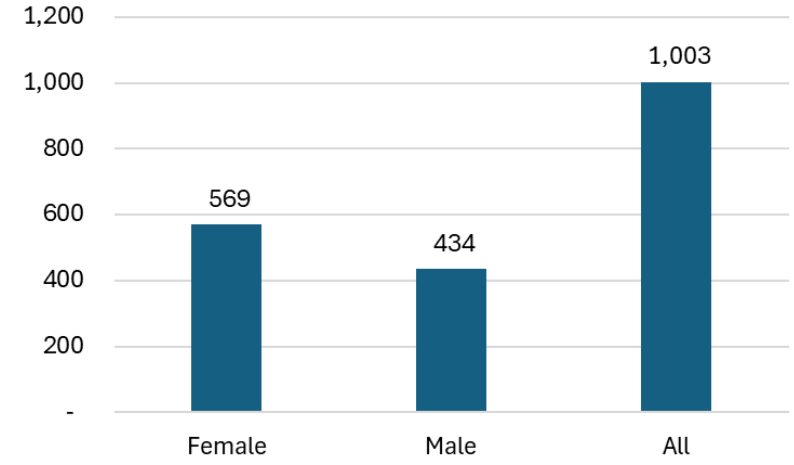


Source: NZIER, Health NZ data (PRIMHD)

Working-age Māori accessing mental health and addictions services had a total of 1,003 contacts in 2022/23, with females accounting for more than half of these.

Figure 47 Mental health and addiction services used by working-age Māori in Hawke's Bay

Number of contacts, 2022/23



Source: NZIER, Health NZ data (PRIMHD)

Due to the lack of complete and granular data on mental health and addiction service use in working-age Māori in Hawke's Bay, the estimates below are unreliable. However, for consistency and a conservative approach, these were estimated on the same assumptions used for outpatient services:

- services are provided Monday to Friday during regular business hours

- a mental health and addiction event results in a loss of half a day of work for people who are employed.

The total value of lost productivity just due to this incomplete number of attendances at mental health and addiction services is estimated to be over $105,000 annually.

Table 19 Total value of lost productivity per mental health and addiction event by working-age Māori

2022/23

Condition	Female	Male	Total
Events	569	434	1,003
Total value of productivity	**$52,613**	**$52,458**	**$105,071**

Source: NZIER, Health NZ (NNPAC), Infometrics 2024, Statistics NZ

In addition to incomplete age data, diagnosis data is incomplete in PRIMHD.

6.3 Ongoing absenteeism and presenteeism

Published studies reveal that many health conditions, including those identified as priority health conditions for Māori, have significant long-term productivity impacts.

Dixon 2015 is a milestone New Zealand study which estimated the income and employment impacts of eight major long-term conditions on New Zealand workers. Relevant to this report, Dixon's results are described in terms of:

- reduction in employment up to 48 months following the development or first occurrence of a health event associated with each of the conditions analysed
- reduction in monthly earnings.

While the study did not analyse all priority health conditions for Māori, there is considerable overlap. Specifically, the study provides estimates of income and employment impacts due to:

- stroke
- cardiovascular disease
- diabetes
- COPD
- prostate cancer, breast cancer, skin cancer

The relevant results of this study are summarised below.

Stroke

Dixon's results indicate that stroke has the most significant impact of the eight conditions analysed, with an immediate reduction in employment (19 to 22 percentage point reduction relative to the matched comparison group) and little improvement over time. Even for those who return to work following a stroke, there was a sharp initial fall in average monthly earnings, and this was followed by a reduction of 13–19 percent of earnings in the period from one year to four years after the stroke. Overall, stroke was

associated with an average 25 percent reduction in total monthly earnings from wages and salaries compared with the matched comparison group during the first six months, with this earnings loss declining only slightly over time, to 21.5 percent in the fourth year after the stroke.

Cardiovascular disease

The impact estimates for people with cardiovascular disease show a 4–6 percentage point fall in the group's average employment rate in the period from 3 months to 4 years after diagnosis. Conditional on working, average monthly earnings were 11 percent lower during the first 6 months and around 5 percent lower thereafter.

Diabetes

Estimates of the labour supply and income impacts of diabetes show modest short-run effects developing in the 3 months after diagnosis. At 3 months post-diagnosis, people with diabetes were 5.2 percentage points less likely to be employed than their matched counterparts without diabetes. By four years later, the difference had declined to 2.6 percentage points. Average earnings conditional on being employed were 4.6 percent lower in the first 6 months after diagnosis and 4.0 percent lower in the fourth year after diagnosis. While Dixon did not find evidence of negative employment and income impacts increasing over time, the report acknowledged that the follow-up period may have been too short for this to be evident and notes a US study of the impacts of diabetes (Minor 2013) which reports that the probability of being in paid work and the employment earnings of those in paid work are negatively related to years since diagnosis, peaking at 10–16 years after the diagnosis.

COPD

For COPD, Dixon finds that the impacts are very small initially but grow slightly larger over time. At three months after diagnosis, people with COPD were 1.3 percentage points less likely to be employed than their matched counterparts without diabetes. By four years later, the difference in employment had increased to 3.1 percentage points. Average earnings conditional on being employed were 2.1 percent lower in the first 6 months after diagnosis and 3.3 percent lower in the fourth year after diagnosis.

Cancers

Dixon found that breast cancer was associated with relatively large employment and income losses in the first year after diagnosis. At 3 months after diagnosis, women with breast cancer were 10.7 percentage points less likely to be employed than their matched counterparts. By two years later, the difference had declined to 2.5 percentage points, after which there was no further consistent improvement.

Average monthly earnings conditional on being employed were 18.7 percent lower in the first 6 months after diagnosis and 7.3 percent lower in the fourth year after diagnosis.

Dixon found no evidence of negative labour supply impacts or income losses following a diagnosis of skin cancer.

People who were diagnosed with prostate cancer were found to be no less likely than their matched counterparts to be employed at any time during the follow-up period, but they did experience a 4 percent reduction in their average monthly earnings during the first 6 months after diagnosis.

Mental illness

Dixon (2015) did not investigate the impact of mental health conditions on employment and income. However, two important studies provided insights that supported our analysis of productivity impacts associated with mental health conditions:

- An Australian study (Schofield et al. 2015) analysed data on working-age Australians and found that individuals with a mental health condition have unemployment rates up to four times higher than healthy Australians and were, in general, reluctant or unable to join the labour force. It also found that employed people with a mental disorder tend to lose more productive time to both presenteeism (reduced performance) and absenteeism (sick days).
- Stewart et al. (2003) estimated the absenteeism and presenteeism of people in employment who experience depression. The study found that workers with depression experienced significantly more lost productive time than those without depression (5.6 hours per week on average compared with 1.5 hours per week on average for non-depressed workers, with 81 percent of lost productive time being presenteeism.

Based on the results of Dixon (2015), Schofield (2010) and Stewart (2003), we estimate productivity losses as described in Table 20 below.

Table 20 Productivity assumptions

Priority condition	Application	Evidence source
Cancer	3% reduced productivity	Dixon 2015
Cardiovascular disease	3.2% reduced productivity	Dixon 2015
COPD	2.8% reduced productivity	Dixon 2015
Diabetes	4.1% reduced productivity	Dixon 2015
Ischemic stroke	15.2% reduced productivity	Dixon 2015
Mental illness	4.1 hours per week (approx. 10%) reduced productivity	Stewart et al. 2003
	30 percentage point increase in unemployment (from 10.3% to 40.3%)	Schofield et al. 2010

7 Conclusion and recommendations

Working-age Māori in Hawke's Bay have patterns of service use that show health service improvements are needed

Based on a conservative approach to identifying people with priority conditions in the working-age Māori population of Hawke's Bay and analysis of their inpatient, outpatient, ED, mortality and mental health data, several important themes emerge:

- Hawke's Bay working-age Māori have:
  - the highest rate of ED visits by people with priority conditions compared with Auckland and Counties Manukau regions
  - the lowest rate of outpatient service use overall compared with Auckland and Counties Manukau regions
  - the highest rate of working-age Māori female deaths compared with Auckland and Counties Manukau regions
  - the highest equal rate of inpatient hospitalisations – on par with Auckland and significantly higher than Counties Manukau
  - the highest rate of acute inpatient hospitalisations in the 50-to-64-year age group compared with Auckland and Counties Manukau working-age Māori of the same age.
- Mental illness – defined in this report to include mental health conditions, self-harm and substance use disorders – is responsible for the greatest loss of productivity (over 90 percent) due to:
  - overall high prevalence in working-age Māori in Hawke's Bay
  - being a significant cause of mortality in working-age Māori in Hawke's Bay, particularly in younger age groups, where the loss of working years is substantial
  - long inpatient stays when inpatient hospitalisations for any reason occur for a person with a diagnosed mental health condition.
- Diabetes ramps up rapidly in the working-age Māori population in Hawke's Bay, becoming a dominant priority health condition at older ages and driving high use of both planned and acute services for people with this condition.
- Working-age Māori males demonstrate a more extreme pattern of low use of planned services, higher rates of acute illness, and a steeper age gradient for all indicators when compared with working-age Māori females, indicating lower rates of access to early diagnosis and effective management of priority health conditions in working-age Māori males.

Priority health conditions in working-age Māori are a productivity opportunity

Because priority health conditions have identified solutions, productivity losses associated with these conditions represent a real opportunity for the health sector to support economic outcomes. This opportunity includes potential productivity gains by reducing working time lost due to attending appointments and being hospitalised, as well as

reducing general productivity losses associated with being in poorer health or dying prematurely.

We quantified the potential productivity value for the Hawke's Bay working-age Māori population with priority health conditions and estimated, based on conservative assumptions, that the total value of the productivity opportunity for this sub-group of the working-age population is around $122 million annually. That figure is broken down in Table 21 below by priority health condition, and Table 22 by source of productivity loss (differences in table totals are caused by rounding). Over 90 percent of this value is associated with premature mortality, of which mental illness is a key driver.

The potential value of the productivity opportunity from addressing priority health conditions in Hawke's Bay working-age Māori is equivalent to an additional 1,800 workers per year in the Hawke's Bay economy.

Table 21 Potential productivity gains by priority health condition for Hawke's Bay working-age Māori

$NZ 2025, based on 2022/23 data

Condition	Female	Male	Total
Cancer	$15,101,980	$14,912,974	$30,014,954
Cardiovascular disease	$7,456,437	$24,634,539	$32,090,977
COPD	$2,614,564	$2,313,744	$4,928,308
Diabetes	$2,620,325	$3,956,545	$6,576,870
Ischemic stroke	$640,028	$257,273	$897,301
Mental illness	$17,318,276	$30,218,623	$47,536,899
Total	**$45,751,610**	**$76,293,698**	**$122,045,308**

Source: NZIER

Table 22 Sources of potential productivity gains for Hawke's Bay working-age Māori with priority health conditions

$NZ 2025, based on 2022/23 data

Source of productivity loss	Female	Male	Total
Mortality	$42,489,861	$71,639,568	$114,129,429
Time spent accessing health services	$1,525,285	$2,166,318	$3,691,602
Hospitalisations	$1,106,143	$1,738,737	$2,844,880
ED visits	$84,693	$118,068	$202,761
Outpatient visits	$281,836	$257,055	$538,890
Mental health & addictions contacts	$52,613	$52,458	$105,071
Ongoing productivity losses	$1,736,462	$2,487,810	$4,224,273
Total	**$45,751,608**	**$76,293,696**	**$122,045,304**

Note: Figures differ slightly between tables due to rounding.

Source: NZIER

Our approach to estimating potential productivity gains that could be achieved by addressing priority conditions was conservative, excluding caregiver and whānau impacts, which are likely to be significant. It is also expected that our results are underestimated due to the use of evidence from a range of occupational contexts: Māori in Hawke's Bay often work hard physical jobs where poor health is likely to have a greater impact on productivity.

Despite our conservative approach, our findings indicate that working-age Māori with priority conditions experience significant productivity losses, which could be addressed through effective early intervention. Overall patterns of health service use suggest that relatively low use of planned care (prevention, early detection and effective management of health conditions) may be driving premature mortality in working-age Māori females and high acute demand with a particularly steep age gradient for working-age males.

Our analysis provides only a part of the evidence needed to inform decisions on solutions.

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Appendix A Identification of priority health conditions

Table 23 ICD10-AM codes used to identify priority health conditions

Priority health condition	Inclusions	ICD10-AM code
Cancer	Breast cancer	C50
	Cervical cancer	C53
	Bowel cancer (incl. colon, rectum, rectosigmoid junction)	C18, C19, C20
	Prostate cancer	C61
	Lung cancer	C34
Cardiovascular disease	Cardiomyopathy	I42
	Rheumatic fever with heart involvement	I01
	Rheumatic mitral valve diseases	I05
	Rheumatic aortic valve diseases	I06
	Rheumatic tricuspid valve diseases	I07
	Other rheumatic heart diseases	I09
	Hypertensive heart disease	I11
	Hypertensive renal disease	I12
	Hypertensive heart and renal disease	I13
	Acute myocardial infarction	I21
	Chronic ischaemic heart disease	I25
	Cardiac arrest	I46
	Heart failure	I50
COPD	Emphysema	J43
	Other chronic obstructive pulmonary disease	J44
	Asthma	J45
Diabetes	Insulin-dependent diabetes mellitus	E10
	Unspecified diabetes mellitus	E14
	Non-insulin-dependent diabetes mellitus	E11
Ischemic stroke	Cerebral infarction	I63
Mental illness	Intentional self-harm codes	X60-X84
	Sequelae of intentional self-harm, assault and events of undetermined intent	Y87
	Mental and behavioural disorders due to psychoactive substance use (F10-19)	F10-F19
	Schizophrenia	F20
	Schizotypal disorder	F21
	Delusional disorders	F22

Priority health condition	Inclusions	ICD10-AM code
	Acute and transient psychotic disorders	F23
	Induced delusional disorder	F24
	Schizoaffective disorders	F25
	Other nonorganic psychotic disorders	F28
	Unspecified nonorganic psychosis	F29
	Manic episode	F30
	Bipolar affective disorder	F31
	Depressive episode	F32
	Recurrent depressive disorder	F33
	Persistent mood (affective) disorders	F34
	Other mood (affective) disorders	F38
	Unspecified mood (affective) disorders	F39
	Phobic anxiety disorders	F40

Source: NZIER, based on Health NZ data (NMDS and Mortality Collection)

Appendix B Spotlight on Wairoa

Within Hawke's Bay, Wairoa has by far the highest proportion of the Māori population, at 69 percent of the district's residents, compared with 24 percent to 28 percent across the rest of Hawke's Bay.

Table 24 Māori representation in the Hawke's Bay districts' populations

June 2023

	Māori % of population
Napier City	24%
Central Hawke's Bay	25%
Hastings District	28%
Wairoa District	69%

Source: Infometrics (2024b)

While most working-age Māori in Hawke's Bay live in urban areas with relatively good access to health services and minimal disruption to employment related to travel time to attend health services, a greater proportion of the Māori population than the non-Māori population live in rural areas (21 percent compared with 13 percent respectively). This is a particular issue for Wairoa due to the concentration of Māori in Wairoa and its rural context.

B.1 Working-age mortality in Wairoa

Deaths coded to Wairoa residents represent a small proportion of Hawke's Bay working-age Māori deaths. From 2018/19 to 2022/23, there were 28 deaths annually on average with any underlying cause in working-age Māori recorded as living in Wairoa. It is important to note that mortality data may underestimate mortality for small communities like Wairoa because if the community has little palliative care or care for people with high health needs available locally, then residents may relocate to other communities when their health declines or they become terminally ill.

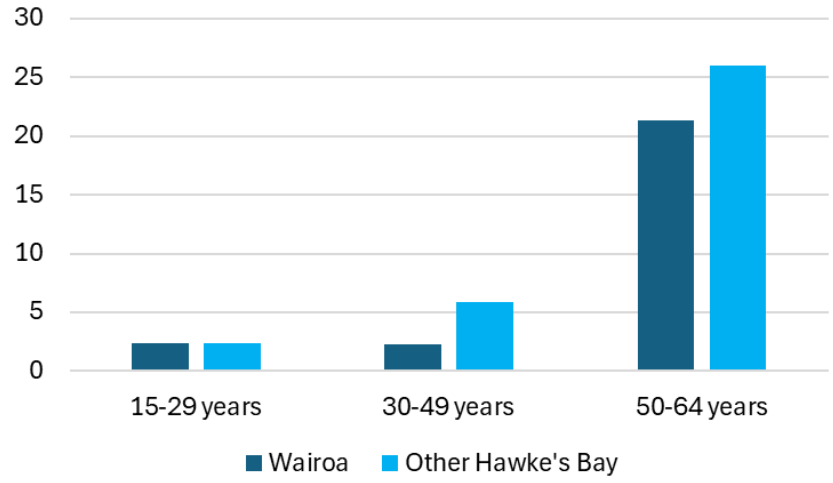
When working-age Māori do die, and their residence in Wairoa is recorded, amongst the priority conditions, they are most likely to die of cardiovascular diseases, followed by cancers and COPD. If they are young (aged 15 to 29 years), mental illness is highly likely to be the underlying cause of death, as all Wairoa Māori deaths in this age group between 2018/19 and 2022/23 were due to this cause. This is similar to the pattern observed in working-age Māori across Hawke's Bay generally.

Deaths with a priority condition as the underlying cause in working-age Māori in Wairoa have occurred in very small numbers over recent years (14 in total over three years), risking the identification of individuals if presented separately by condition.

Wairoa's working-age mortality rates are lower or no higher across all ages than in other Hawke's Bay districts.

Figure 48 Wairoa and other Hawke's Bay working-age Māori mortality rate by age group

Average annual rate per 1,000 population, 2018/19 to 2020/21

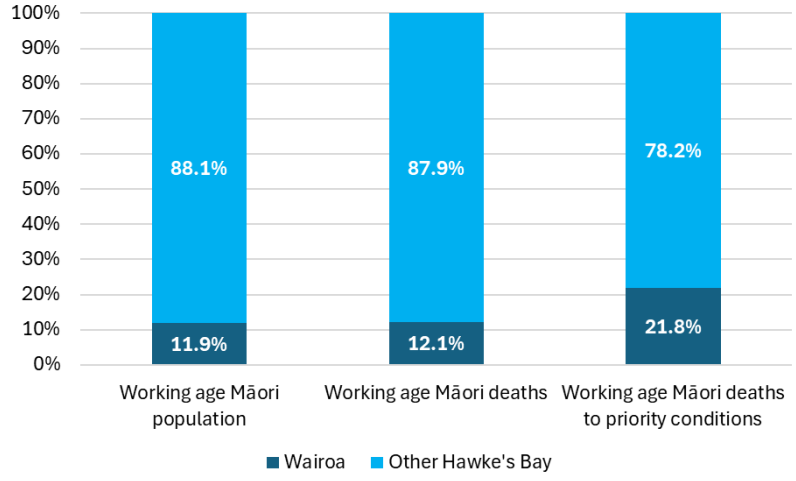


Source: NZIER, Health NZ (Mortality Collection)

The Māori working-age population in Wairoa is slightly over-represented in Hawke's Bay working-age Māori mortality and significantly over-represented in Hawke's Bay working-age Māori mortality to priority health conditions (see Figure 49 below).

Figure 49 Representation of Wairoa working-age Māori in Hawke's Bay working-age Māori deaths

Wairoa and Other Hawke's Bay shares, mortality 2018/19 to 2022/23, population 2022



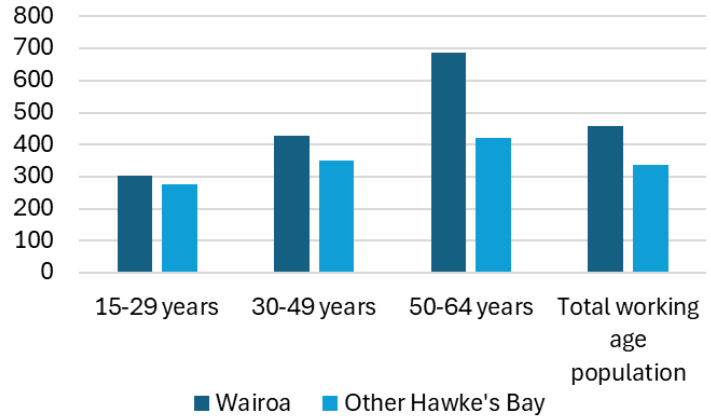
Source: NZIER, Health NZ data (Mortality Collection), Statistics NZ population estimates by region and district

B.2 ED visits by Wairoa residents

Wairoa working-age Māori have a higher rate of ED visits than the rest of Hawke's Bay's working-age Māori population generally, with the Wairoa rate being higher in all working-age groups, particularly those aged 50 to 64 years.

Figure 50 Rate of ED visits by Wairoa and other Hawke's Bay working-age Māori

ED visits per 1,000 population, 2022/23

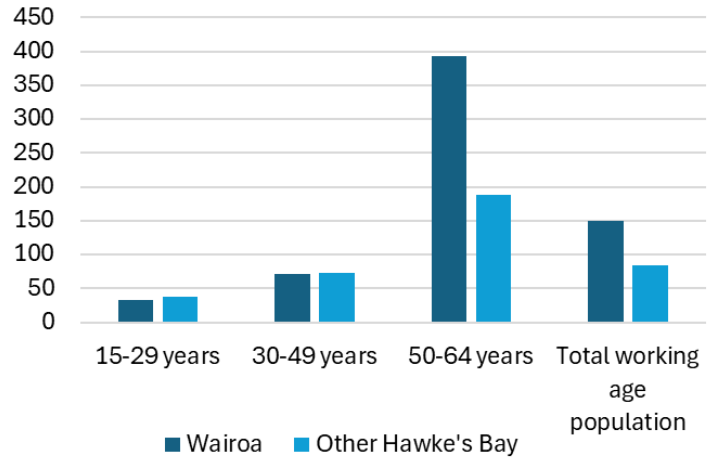


Source: NZIER, Health NZ data (NNPAC), Statistics NZ population projections

Figure 51 below shows that while priority conditions do not drive the difference between ED visit rates in the two younger age groups, for people aged 50 to 64 years, a priority condition diagnosis is associated with more than double the rate of ED visits for Wairoa residents than for other Hawke's Bay residents. This result is potentially indicative of poorer access to early diagnosis and effective management of priority conditions and/or health services in Wairoa being less effective generally for people with priority conditions.

Figure 51 Rate of ED visits by Wairoa and other Hawke's Bay working-age Māori with priority conditions

Ed visits per 1,000 population, 2022/23



Source: NZIER, Health NZ data (NNPAC), Statistics NZ population projections

B.3 Admissions from ED for Wairoa residents

In general, working-age Māori from Wairoa are not more likely to be admitted when they visit the ED, with younger Wairoa residents being significantly less likely than younger working-age Māori from other parts of Hawke's Bay. However, working-age Māori from

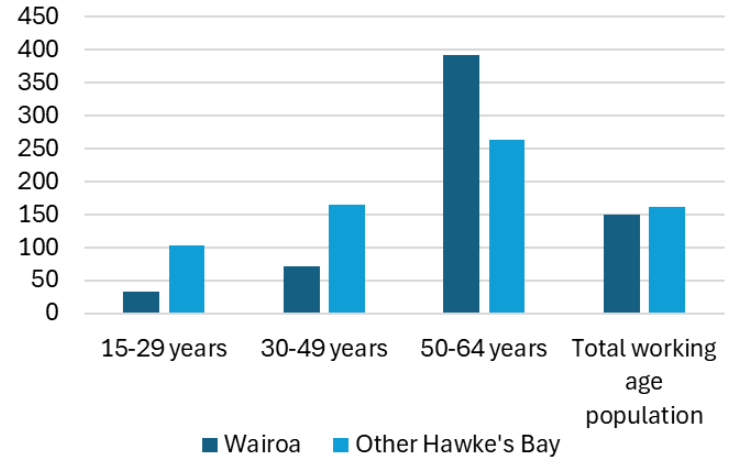
Wairoa who are in the 50-to-64-year age group are significantly more likely to be admitted when they visit the ED.

These significantly different results across the different age groups may be indicative of:

- a lack of acute care options for Wairoa residents, causing younger people with less serious health concerns to visit the ED while their counterparts in other parts of Hawke's Bay use alternative acute care services for minor ailments
- more significant health issues affecting older working-age Māori in Wairoa, so that when they visit the ED, they are more likely to require hospital admission.

Figure 52 Rate of admissions from ED for Wairoa and other Hawke's Bay working-age Māori

Admissions from ED per 1,000 population, 2022/23

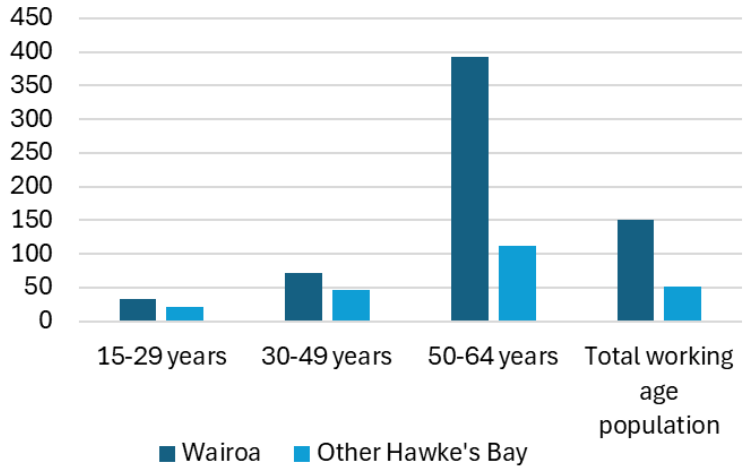


Source: NZIER, Health NZ data (NNPAC), Statistics NZ population projections

The differences become even more stark when focusing on priority conditions in ED admissions for Wairoa working-age Māori. Younger groups from Wairoa with diagnosed priority conditions face a lower rate of admission from ED than their equivalent demographic from the rest of Hawke's Bay, but older working-age Māori from Wairoa have a much higher rate of admission from the ED if they have a priority condition diagnosis (see figure below).

Figure 53 Rate of admissions from ED for Wairoa and other Hawke's Bay working-age Māori with priority conditions

Admissions from ED per 1,000 population, 2022/23



Source: NZIER, Health NZ data (NNPAC), Statistics NZ population projections

A comparison of the probabilities of admission from ED reveals that the difference in the rates for working-age Māori aged 50 to 64 is driven by the rates of presentation to ED, not by a higher probability of admission, both for people who have a priority health condition and for those who do not. In fact, for working-age Māori presenting to the ED, being from Wairoa generally means a lower probability of admission, particularly if there is no priority condition diagnosis (see Table 25 below).

Table 25 Probabilities of admission for working-age Māori ED visits

Wairoa vs Other Hawke's Bay, 2022/23

Probability of admission	Other Hawke's Bay		Wairoa	
	All	Diagnosed with priority condition(s)	All	Diagnosed with priority condition(s)
15-29 years	38%	56%	30%	57%
30-49 years	47%	64%	28%	44%
50-64 years	63%	60%	47%	60%
Total working-age population	**48%**	**60%**	**37%**	**57%**

Source: NZIER, Health NZ data (NNPAC)